

or TV console games for at least four years, in order to identify a few related product categories. Therefore, the focal product or function in our study is compatible with realistic platforms, moderately feasible, and not trivial, and it requires moderately high but still reasonable skill transfers. These interviews also ensured that the study stimuli would be popular and strongly associated with convergent products, so that participants would show a high level of interest (Kumar 2005).

The base product provides the following characteristics: (1) price from NT\$14,000 to NT\$17,000, (2) a new function or product compatible with 3G platforms or TV game consoles, (3) can download music and pictures, (4) can play online games and watch TV and news, (5) supports e-mail, website connections, and music, (6) allows players to connect with one another through wireless or Internet connections while playing the game.

Online game clips came from a website (www.gamer.com.tw) and are modified at the same rate such as half or quarter of original films. Participants watched the films for about 2 minutes, after the storyline of the game and the characteristic of its base product were explained for about 1 minute.

Samples

Students from the department of business administration at Ming Chuan University in Taiwan participated in this study. In terms of gender, 45.6% were men and 54.4% were women.

Manipulation check

The difference in brand evaluations for an added online game reveals that a weak signal ($M = 3.13$, $SE = .08$) offers less value for respondents than a strong signal ($M = 4.19$, $SE = .05$; $t(77) = -10.57$, $p < .000$). According to Wilks' lambda by F-value, the effects of gender on the value for a convergent product are insignificant ($=1.02$; $p = .40$).

Results

According to Wilks' lambda by F-value, the primary effects of the brand signal are significant, $F = 6.64$, $p = .002$, but platform effects and their interaction, respectively $F = 1.91$, $p = .15$ and $F = .69$, $p = .51$, on the value of a convergent product are insignificant. A two-way analysis of value ratings indicates a significant effect of brand signal on the product values for weak signals (user network $M = 3.13$, $SE = .10$; complementary network $M = 3.37$, $SE = .10$; $F(1,75) = 12.01$, $p = .001$; $F(1,75) = 5.53$, $p = .021$). However, the effect is not as notable as that for the strong signal (user network $M = 3.60$, $SE = .09$; complementary network $M = 3.67$, $SE = .08$), which supports H1.

Another two-way analysis also indicates a insignificant effect of the Platform(i.e., 3G mobile game or TV game) on network effects, such that valuations of the TV game (user network $M = 3.45$, $SE = .10$; complementary network $M = 3.46$, $SE = .10$) are less than those for online games (user network $M = 3.28$, $SE = .09$; complementary network $M = 3.59$, $SE = .09$; $F(1,75) = .18$, $p = .67$; $F(1,75) = .94$, $p = .34$). This supports H1.

Study b

Design and sample

We replicate the stimuli for the base product and an added product from Study 1a, together with the brand signal measure and the measures of perceived cost. During an evaluation of an added product, a convergent product should be categorized as either an upgrade or a new product. To

test H2, we use a 2 (brand signal: strong, weak) $\times$ 2 (ownership: upgrade, new product) between-subjects design. The sample's demographics include 46.9% men and 53.1% women. According to the Wilks' lambda by F-value, the effects of gender on the value for an convergent product are insignificant ($F=.5$; $p>.1$).

Manipulation check

The differences in brand evaluations ($\alpha=.91$) reveal that for these respondents, a weak signal ($M = 3.12$, $SE = .07$) is less valuable than a strong signal ($M = 4.43$, $SE = .06$; $t(96) = -13.25$, $p<.000$). With regard to the costs of ownership for convergent products, including extra costs, hidden costs/charges, and upfront costs (e.g., membership fees) (Burnham et al. 2003) ($\alpha= 0.91$) due to an added product or functionality, they are ranked as being lower for upgrades than for new product purchases. Specifically, perceived costs for an upgrade ($M = 3.43$, $SE = .04$) are less than those for new products ($M = 5.00$, $SE = .001$; $t(96) = -31.10$, $p = .001$). A signal also reflects the level of familiarity in which respondent swore familiarity, had heard and were recognized the stimuli (Kumar 2005). The manipulation check for familiarity reveals that an upgrade ($M = 3.62$, $SE = .12$) is less familiar to respondents than new products ($M = 4.38$, $SE = .13$; $t(96) = -4.28$, $p<.000$).

Results

According to Wilks' lambda by F-value, the primary effects of the brand signal and ownership, respectively $F = 12.24$, $p<.000$ and $F = 7.18$, $p=.001$ are significant, but their interaction, $F = .87$ and $p = .84$, on the value of a product is in significant.

A two-way analysis of value indicates a significant effect of brand signal, though the weak signal's effect (user network $M = 2.98$, $SE = 1.00$; complementary network $M = 3.39$, $SE = 1.01$; $F(1,94) = 21.93$, $p<.000$; $F(1,94) = 14.41$, $p<.000$) is not as notable as that for the strong signal (user network $M = 3.70$, $SE = 1.00$; complementary network $M = 3.93$, $SE = 1.01$). This supports H1.

Another two-way analysis indicates a significant effect of ownership. The product value of an upgrade is less than that for a new product (user network $M = 3.41$, $SE = .10$; complementary network $M = 3.46$, $SE = .10$; $F(1,94) = 0.81$, $p = .65$; $F(1,94) = 7.59$, $p=.007$; user network $M = 3.27$, $SE = .10$; complementary network $M = 3.86$, $SE = .10$). This is in opposite support of H2 (see Figure 1B).

Study c

Design and sample

We replicate the stimuli, brand signal measure, and study context from Study a, as well as the measure of usage experience for an added product or functionality. We test our hypotheses with a 2 (brand signal: strong, weak) $\times$ 2 (usage experience) between-subjects design. The sample includes 46.9% men and 53.1% women. The effects of gender on the value for an convergent product are insignificant ($F=.38$, $p>.1$).

Manipulation check

The differences for brand value ($\alpha=.94$) reveal that the weak signal ($M = 2.91$, $SE = .09$) is less influential than the strong signal ($M = 4.37$, $SE = .05$; $t(116) = -14.06$, $p<.000$). The measure of usage experience comes from Shih and Venkatesh (2004) and includes three items: "I have played many kinds of products (TV or PC games)", "I am sophisticated with many kinds of

products”, and “I have been sophisticated with the products for many years”.

We use a median split to the high and low scores, such that higher scores indicate more experience. Differences in usage experiences ($\alpha=.98$) present that less experience ($M = 2.69$, $SE = .09$) leads to lower valuations than more experience ($M = 4.15$, $SE = .08$; $t(96) = -11.32$, $p<.000$).

Results

According to Wilks' lambda by F-value, the primary effects of the brand signal and experience are significant, at respectively $F = 13.37$, $p<.000$ and $F=5.97$, $p=.003$, but their interaction, $F=1.12$, $p=.33$, on the value of a converged product is insignificant.

A two-way analysis for the values indicates a significant effect of the brand signal, though again, the weak signal (user network $M = 3.09$, $SE = 1.04$; complementary network $M = 3.53$, $SE = .10$) has a lesser impact than the strong signal (user network $M = 3.77$, $SE = .10$; complementary network $M = 4.04$, $SE = .09$; $F(1,114) = 22.67$, $p<.000$; $F(1,114) = 14.48$, $p<.000$). This also supports H1.

The next two-way analysis indicates a significant effect of usage experience, such that respondents with less experience value the product less (user network $M = 3.21$, $SE = .09$; complementary network $M = 3.60$, $SE = .10$) than did respondents with more experience (user networks $M = 3.64$, $SE = .10$; complementary network $M = 3.97$, $SE = .10$; $F(1,114) = 9.06$, $p=.003$; $F(1,114) = 7.75$, $p=.006$). This supports H3.

5 CONCLUSIONS AND DISCUSSIONS

This article goes beyond price signals (Katz and Shapiro 1986, 1994; Brynjolfsson and Kemerer 1996; Gandal 1994; Lee and O'Connor 2003; Nagard-Assayag and Manceau 2001; Burnham et al. 2003) to describe the effects of various signals on network effects. In particular, signals improve the advantage enjoyed by better quality brands (Tellis et al. 2009). Customers are willing to pay a price premium for superior products (Brynjolfsson and Kemerer 1996; Gandal 1994; Katz and Shapiro 1986; Lee and O'Connor 2003; Nagard-Assayag and Manceau 2001), and credible brand signals can encourage and reaffirm this willingness.

This study uses quasi-experimental designs and tests the effects of credible signals on consumers' perceived value of a converged product due to added an online game. The results should be generalizable to other convergent products that do not rely on networks, such as MP3 music, digital cameras, or mobile televisions that are added to personal digital assistants – for example, Garmin's iQue 3000 that features global positioning; Blackberry Pearl, which includes a camera and MP3 music with a handheld e-mail device; and the video iPod that offers video capability (Gill 2008). Further research should test real, empirical cases of such convergent products.

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Psychology

Room 609 13:15-14:45, March 16

Session Chair: Dr. Victoria L. Brescoll

378

Who Takes the Floor and Why: Gender, Power and Volubility in Organizations

Victoria L. Brescoll | *Yale School of Management*

131

Impact of Personality on Employee Well-Being

Najib Ahmad Marzuki | *Universiti Utara Malaysia*

217

Leadership of Entrepreneurs: Structural Relationship among Psychological Characteristics, Teamwork, and Success in Business

Rattigorn Chongvisal | *Kasetsart University*

170

Antecedents and Effect concerning Scientist Personality of Science Students in Bangkok, Thailand

Phanarat Phanuschutabool | *National Research Council of Thailand*

Pinkanok Wongpinpech | *King Mongkut's University of Technology*

Jirawat Rodcham | *Thailand Institute of Scientific and Technological Research*

331

“Work Behaviors based on Sufficiency Economy Philosophy” Meaning, Enhancing and Consequences to Employee and Organization: Perspectives of Employees in Factories of Automotive Parts Manufacturing Industry in Thailand

Sayamon Akakulanan | *Kasetsart University*

359

Trypanophobia (Needle Phobia) in Young Adults: A Cross Sectional Study

Asima Faisal | *Institute of Business Management*

Nadia Ayub | *Institute of Business Management*

431

Anger, Emotional Distress and Suicidal Ideation in University Students with Mild Psychological Problems

Tahira Mubashir | *University of the Punjab, Lahore*

Soulat Khan | *University of the Punjab, Lahore*

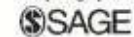
297

Gender Differences in Resilience and Psychological Distress of Patients with Burn Injuries

Afsheen Masood Malik | *University of the Punjab, Lahore*

Who Takes the Floor and Why: Gender, Power, and Volubility in Organizations

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Victoria L. Brescoll¹

Abstract

Although past research has noted the importance of both power and gender for understanding volubility—the total amount of time spent talking—in organizations, to date, identifying the unique contributions of power and gender to volubility has been somewhat elusive. Using both naturalistic data sets and experiments, the present studies indicate that while power has a strong, positive effect on volubility for men, no such effect exists for women. Study 1 uses archival data to examine the relationship between the relative power of United States senators and their talking behavior on the Senate floor. Results indicate a strong positive relationship between power and volubility for male senators, but a non-significant relationship for female senators. Study 2 replicates this effect in an experimental setting by priming the concept of power and shows that though men primed with power talk more, women show no effect of power on volubility. Mediation analyses indicate that this difference is explained by women's concern that being highly voluble will result in negative consequences (i.e., backlash). Study 3 shows that powerful women are in fact correct in assuming that they will incur backlash as a result of talking more than others—an effect that is observed among both male and female perceivers. Implications for the literatures on volubility, power, and previous studies of backlash are discussed.

Keywords: volubility, power, gender, organizations, stereotyping

Given its centrality to psychology, impression formation, and interpersonal interactions, the study of volubility—the total amount of time spent talking in group contexts—has generated a considerable amount of research over the last fifty years. Individuals mostly base their judgments of others' traits (e.g., how dominant they are) or states (e.g., whether they are a manager or a subordinate) on others' verbal and nonverbal behaviors. Thus how much an individual talks in interpersonal interactions is a key way in which we not only draw inferences about that person but also in how we interact with him or her.

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Moreover, interpersonal communication—whether verbal or nonverbal—has a direct impact on the way that status and power hierarchies are built, maintained, and changed. For example, research by Bales and his colleagues showed that power hierarchies are formed largely based on how much members participate in the group (Bales, 1950; Bales et al., 1951); the more an individual verbally participates, the more likely that individual will be seen as having power. Therefore, volubility not only plays an important role in establishing power hierarchies but also in communicating one's power to others (Mast, 2002).

Overall, two main factors have emerged as central to understanding volubility in organizations: power and gender (Coates, 1986; James and Drakich, 1993; Tannen, 1993; Locke and Hauser, 1999). Identifying the unique contributions of each of these factors, however, has been somewhat elusive. Past research has typically examined the emergent relationships between power and volubility (e.g., the correlation between talking time and reported measures of dominance) but has not manipulated power independent of gender (see James and Drakich, 1993, for a review). In most social contexts, women have less power than men, and as a result, power and gender are naturally confounded (Dovidio et al., 1988; Sidanius and Pratto, 1999). Therefore, on the basis of previous research it is difficult to identify the unique effects of power on volubility independent of preexisting trait variables, such as gender, and the extent to which power has equivalent effects on men and women's volubility in organizations.

The present studies attempt to address these issues by examining the independent effects of power and gender on volubility, as well the potential interaction. Study 1 examined the relationship between volubility, power, and gender using archival data from the U.S. Senate, a real-world organization in which power varied independently of gender. Study 2 was a laboratory experiment that independently manipulated power for both men and women and examined the resulting effects on volubility. Study 3 then examined whether powerful women are correct in assuming that they will incur backlash as a result of talking more than others.

THE EFFECTS OF POWER AND GENDER ON VOLUBILITY

The Effects of Power on Volubility

Here, power is defined in terms of control over resources (e.g., Keltner, Gruenfeld, and Anderson, 2003; Thibaut and Kelley, 1959) and what is frequently referred to as "social power," which highlights an individual's capacity to influence and control the behavior of others (e.g., Overbeck and Park, 2001; Galinsky, Gruenfeld, and Magee, 2003). A large literature has established that experimental manipulations of power have a number of important psychological consequences. For example, power increases a person's likelihood of engaging in approach-type behaviors (Keltner, Gruenfeld, and Anderson, 2003), such as expressing more confidence in their own ideas (Galinsky et al., 2008), taking risks (Anderson and Galinsky, 2006), and taking action to accomplish their goals (Galinsky, Gruenfeld, and Magee, 2003). Such increases in agency have been linked to more general increases in perceptions of control (Fast et al., 2009). Past research has found that experimental manipulations of power have a

similar effect on both men and women. Furthermore, previous research on volubility has generally assumed that power should increase volubility, regardless of gender (see Mast, 2002, for a review). This relationship between volubility and power may exist because the amount of attention that is paid to an individual in social groups is directly related to that individual's ability to control the behavior or opinions of others (Fiske, 2010). When an individual is higher in power than the other members of the group, he or she may feel licensed to demand the attention of others (Locke, 1998; Mast, 2002). In turn, others may allow that individual to talk for a disproportionately longer amount of time, perhaps to signal deference or to avoid negative consequences that may result from failing to do so (Fiske, 2010).

Several studies in the communications literature have found that volubility is positively related to leadership and dominance in new groups (for meta-analyses, see Stein and Heller, 1979; Mullen, Salas, and Driskell, 1989; Mast, 2002). For example, Schmid Mast (2001) examined all-male and all-female small-group discussions and found a relationship between talking time and ratings of dominance reported by other group members. As discussed above, however, a limitation of past research in this area is that these studies have not independently manipulated power, instead observing the emergent relationships between power and volubility in a group context (e.g., Kimble and Musgrove, 1988; Palmer, 1989; Linkey and Firestone, 1990; Ng, Brooke, and Dunne, 1995). This point is critical because, as noted by several researchers, men disproportionately occupy positions of social, political, and economic power relative to women (e.g., Basow, 1986). Moreover, these power differences may often be reflected in patterns of communication, as strong parallels have been observed between interactions among individuals with high and low power and interactions among men and women (Henley, 1977). Therefore, to assess the extent to which power and gender may independently contribute to volubility (or potentially interact), it is necessary to manipulate power for both men and women directly or examine contexts in which power varies independently of gender.

Nevertheless, one relatively straightforward prediction from these literatures is that power should have a main effect on both men and women's talking time in organizations: in general, high-power individuals should talk more than low-power individuals, regardless of gender, because power licenses those individuals to talk for a greater amount of time relative to other individuals in the group:

Hypothesis 1: There will be a main effect of power on volubility such that individuals who are higher on objective measures of power will speak for a longer time than individuals who are lower on objective measures of power.

The Effects of Gender on Volubility

At the same time, a great deal of research has established that women are less likely than men to engage in aggressive or dominant behaviors (Eagly and Steffen, 1986; Archer, 2009). For example, in small group contexts, women are less likely to engage in nonverbal displays such as chin thrusts as well as verbal displays, such as initiating speech (Dovidio et al., 1988). Similarly, women are less likely than men to emerge as a leader (Eagly and Karau, 1991), initiate

negotiations (Bowles, Babcock, and Lai, 2007), and behave aggressively (Eagly and Steffen, 1986; Archer, 2009). Conversely, women are more likely than men to engage in low-power displays, such as smiling (LaFrance, Hecht, and Paluck, 2003) and maintaining eye contact when an interaction partner is speaking (Swim, 1994).

These basic gender differences, many of which have been confirmed via meta-analyses, can be explained in terms of social role theory (Eagly and Steffen, 1984, 2000). Social role theory states that because men and women occupy different social roles, they behave in predictably different ways in line with these roles. Specifically, because women are more likely than men to be in nurturing roles (e.g., mother, caretaker), they may behave in ways that are more communal and less aggressive. Another explanation for such gender differences focuses on men's greater levels of testosterone relative to women, which is associated with greater aggression and dominance (Dabbs and Dabbs, 2000).

Therefore, it may be that, overall, women are less voluble than men in organizations simply because they are less likely to engage in behaviors that are dominant or aggressive, which may include talking more than others in a group setting. In other words, research on gender differences makes a distinct prediction from the power literature in suggesting a main effect of gender on volubility: in general, men will talk more than women, regardless of individual differences in power.

Hypothesis 2: There will be a main effect of gender on volubility such that men will speak for a longer time than women.

The Interaction between Gender and Power on Volubility

A third possibility is that power has a different effect on men and women's volubility. It may be that while men show a strong positive relationship between talking time and power, women show no such effect (or a much weaker one) for at least two reasons. The first stems from the different ways men and women approach leadership and power (Yoder and Kahn, 1992; Eagly and Carli, 2007). Some research has found that women lead (i.e., enact their power) in a more democratic, non-hierarchical fashion than men (Helgelsen, 1995), while men are more sensitive to and more comfortable with hierarchy (Pratto et al., 1997) and may behave in ways that reinforce their position in the hierarchy (e.g., talking more when they have power). In contrast, women may talk to establish and maintain relationships with others (Maltz and Borker, 1982; Coates, 1986; Edelsky, 1993; Gayle, Preiss, and Allen, 1994; Mast, 2002) and therefore would be likely to speak for the same amount time as their counterparts, regardless of their power.

An alternative explanation, which predicts the same interaction pattern, has to do with women's potential fear of backlash (i.e., social and economic penalties). The status incongruity hypothesis proposes that women, by dint of their mere categorization as women, are assumed to be low in power (Rudman et al., 2012). Therefore when women engage in power-seeking behavior (i.e., power displays), their behavior is judged to be incongruent with their gender, and as a result, women may incur backlash from both male and female perceivers (Rudman, 1998; Heilman and Okimoto, 2007; Brescoll and Uhlmann,

2008). In turn, women's fear of encountering backlash may deter them from engaging in power displays (Rudman et al., 2012). For example, fear of backlash has been shown to explain women's failure to self-promote (Moss-Racusin and Rudman, 2010) and engage in aggressive negotiations (Amanatullah and Morris, 2010). With respect to volubility, though men may be quite sensitive to power hierarchies and associated displays of power, such as talking more than others, even high-power women may avoid dominating a conversation, group meeting or other public setting for fear of experiencing negative consequences (Tannen, 1993).

Hypothesis 3: There will be an interactive effect between gender and power on volubility such that men will show a strong positive relationship between power and volubility, while women will show no such effect (or a much weaker one).

Thus past research makes a number of predictions regarding the effects of power on volubility for men and women, with one literature predicting a main effect of power, another predicting a main effect of gender, and a third predicting an interaction effect. As noted above, this issue is further complicated by the fact that in most social contexts, power and gender are confounded (Dovidio et al., 1988; Sidanius and Pratto, 1999) and in previous research on volubility, power and gender have not been manipulated independently. Therefore the present studies sought to test the predictions outlined above in contexts in which both men and women's power independently varied along quantifiable dimensions. Study 1 tested these hypotheses using field data from U.S. senators. Additionally, two laboratory experiments (Studies 2 and 3) were conducted to establish the causal direction of the effects of power on volubility, as well as the underlying mechanisms.

STUDY 1: GENDER AND VOLUBILITY IN THE UNITED STATES SENATE

Study 1 examined the relationship between volubility and gender and power using archival data from the United States Senate. Specifically, I measured the total amount of time that each senator spent speaking on the Senate floor for the entirety of two different congressional sessions (2005 and 2007) with two different political parties in control (the Republican party in 2005 and the Democratic party in 2007).

This data set was selected for a number reasons. First, although almost all organizations have a formal or informal power hierarchy of some kind, it can be extremely difficult, if not impossible, to quantify that hierarchy. Unlike Congress, most organizations do not have publicly available data that would allow such a detailed quantification. Because the Senate is a public organization whose activity is officially documented by law (via C-SPAN, the *Congressional Record*, etc.), however, most senatorial behavior is observable and therefore subject to study. Second, unlike almost any other organization, the U.S. Senate (via the *Congressional Record* and C-SPAN) keeps records not just of every word that is uttered in the Senate but also of other nonverbal (e.g., smiling, gesturing) and verbal behaviors (e.g., the topics that senators are talking about, whether they use visual aids in their presentation). Finally, this data source is high in ecological validity in that the senators were unaware that anyone was conducting a study on their speaking behavior.

This field study provides the first examination of the relationship between volubility and gender and power in a real-world organization. For example, perhaps among individuals who are generally low in power in society overall (e.g., college undergraduates), the effects of power on volubility are quite different from real-world contexts in which there is considerable variability in the amount of power that individuals hold in their organization. Moreover, these data provided an important opportunity to examine the unique effects of power and gender on volubility, as power could be measured independently from gender in this context.

Method

Predictor variables. The two predictor variables in this study were the gender of the senator and his or her individual power score. Although relative to the lay population, U.S. senators have a tremendous amount of power, there is still considerable variation in individuals' power in that organization. Power scores for each senator for the years 2005 and 2007 were obtained from Knowlegis, a non-partisan private firm composed of political scientists and former long-term congressional staffers (see <http://knowlegis.net>). Each power score comprised four components: position, indirect influence, legislative activity, and earmarks. The measure of *Position* consisted of the senators' tenure, leadership positions (e.g., on committees and subcommittees), and committee assignments. Although years of service often determine leadership positions this is certainly not the case universally, as freshman can gain these positions over longer-tenured members. Similarly, committee assignments are crucial to how members can wield power. Being assigned to the Appropriations Committee, for example, is a high-power assignment because that committee determines how much federal money will be appropriated (i.e., actually doled out), regardless of how much money was actually authorized in a particular bill. *Indirect influence* consisted of how much each individual senator was capable of influencing the outcome of votes or the congressional agenda via the media or congressional caucuses. Legislative activity was measured by documenting whether the senator had actually shaped or changed the passage of legislation—not just merely introduced a bill. Finally, *Earmarks* are funds that are approved to be spent on specific projects in a state or district and reflect a senator's ability to direct resources toward his or her own state and away from other states. Each senator's individual power score was constructed by averaging their scores on these four indices.

Dependent variable. *Volubility* was measured by obtaining data from C-SPAN footage (cross-referenced with the *Congressional Record*) on how much time each individual spent talking on the Senate floor (measured separately for 2005 and 2007). What senators choose to speak about on the Senate floor varies widely. It can be anything from introducing legislation to calling attention to a specific issue to engaging in debate with another senator. Importantly, however, in general no senator has any more right than another senator to speak on the floor. The exception to this is the time allotted to the Senate majority leader and the minority leader (or their designees) who are each allotted 10

minutes apiece to conduct "official business," although they do not need to and very often do not use the full ten minutes (Davis, 2007). Otherwise, low-power senators are able to speak on the floor of the Senate as much as high-power senators if they choose to.

Rate of speech. Additionally, past research has found that people who speak slower are seen as higher in power (Gruenfeld, 2010). Therefore it may be that more powerful senators talk at a slower pace, which would be confounded with overall speaking time. To address this concern, two trained research assistants randomly selected five speeches from female senators and five speeches from male senators and coded the rate of speech (1 = extremely slow, 5 = extremely fast; Cohen's kappa = .59).

Results

A regression analysis using the combined data from 2005 and 2007 with year, power scores, senator's gender, and the interaction between senator's gender as independent predictors of talking time revealed a significant main effect of power, $\beta = .38$, $t = 3.18$, $p = .002$, no significant effect for gender, $\beta = .19$, $t = 1.22$, $p = .22$, and a marginally significant interaction between gender and power, $\beta = .33$, $t = 1.68$, $p = .09$.

To examine the nature of the interaction between power and gender, volubility was examined for male and female senators separately for 2005 and 2007. In 2005, there was a significant positive relationship between male senators' power and volubility, $r(87) = .54$, $p < .001$. In contrast, the relationship between power and volubility for female senators was non-significant, $r(12) = .28$, $p = .35$. Similarly, in 2007, the relationship between power and volubility was significant for male senators, $r(82) = .61$, $p < .001$, but not significant for female senators, $r(16) = .28$, $p = .28$. In neither year was there a significant main effect of gender on volubility, consistent with the combined analysis above, nor was there a difference in power scores for male versus female senators.

There was also a significant difference in the overall amount of talking across years, $\beta = .21$, $t = 3.38$, $p = .001$, which was not surprising given that each year, the Senate meets for a different amount of time, leading to natural variations in how much time senators spend talking on the floor.

Similar analyses as above were performed on data for rate of speech, but these analyses showed no effects for gender or power and no interaction.

Discussion

With respect to the hypotheses, the results from Study 1 showed a main effect of power on volubility. This result seems to favor hypothesis 1, that power licenses individuals to speak for disproportionately longer amounts of time in organizations. But the results also indicated an interaction between power and gender on volubility. Although this interaction effect was marginally significant, it is important to note that the number of female senators ($N = 14$) was small, which affected the statistical power of the study. Furthermore, the correlations between power and gender lend support to this interaction in that, for male senators, the correlation between power and gender was highly significant for

both years, whereas for female senators, the correlation was not significant in either year.

This interaction result supports hypothesis 3, that power differentially affects speaking time for men and women, which may occur either because men and women have different motives for speaking within an organization, reflecting hierarchical relationships versus establishing rapport with others, or because women are concerned about the potential backlash stemming from appearing to talk too much. In contrast, there was no main effect of gender on volubility, and therefore hypothesis 2 was not supported by this study. Additionally, it is important to note that in this sample, men and women did not differ in their overall level of power, which is consistent with the notion that this particular data set was unique in its ability to disentangle the effects of power and gender.

Although the results are thought-provoking, this study was correlational and therefore could not address questions about the direction of the effect, such as whether power causes men to talk more or whether talking disproportionately more than others leads men to gain power. In the case of the Senate, it seems likely that power increases volubility, rather than the other way around. An individual senator can obtain power in many ways, including fundraising, making behind-the-scenes deals with other members of Congress, etc. Therefore, given the multiple routes to obtaining power in the Senate, it seems unlikely that merely talking more on the Senate floor would cause an individual senator to gain power in any significant way. Nevertheless, Study 2, a controlled experiment, was conducted to test the causal relationship between power and volubility and further explore the interaction between gender and power on volubility as well as the underlying reasons for it.

STUDY 2: EXPERIMENTAL MANIPULATION OF POWER

Results from the U.S. Senate data indicated an interaction between power and gender on volubility. Specifically, male senators showed a strong positive relationship between power and speaking time, while female senators did not. One question surrounds the causal direction of this effect: does power in fact cause men to increase their volubility? To examine this, Study 2 experimentally manipulated power for male and female participants and measured the resulting effects on volubility.

A second question concerns the underlying reasons why power may have different effects for men than for women. As outlined in the introduction, one explanation of this interaction is that while men are more comfortable with hierarchy (Offerman and Schrier, 1985) and will actively engage in behaviors that communicate their power to others, women are likely to enact their power in a more democratic, non-hierarchical fashion (Helgelsen, 1995). Thus men may behave in ways that reinforce their position in the hierarchy, whereas women may talk to establish rapport with others and therefore would be likely to talk for the same amount of time as their female counterparts, regardless of their power (Maltz and Borker, 1982; Coates, 1986; Edelsky, 1993; Gayle, Preiss, and Allen, 1994; Mast, 2002).

An alternative explanation, however, is that high-power women are not as voluble as their male counterparts because they are concerned about the potential backlash that may result from talking too much. Rudman and

colleagues' (2012) status incongruity hypothesis proposes that women are assumed to be low in power, and therefore women may incur "backlash" when they engage in power-seeking behavior (Okimoto and Brescoll, 2010). In turn, fear of backlash may lead high-power women to avoid talking disproportionately longer than others for fear of experiencing negative consequences.

These competing hypotheses can be distinguished in two ways. The first method is via different predictions about the overall level of talking time as a function of gender and high versus low power. Specifically, an explanation based on women's desire to establish rapport with others predicts that, relative to men, high-power women should reduce their talking time while low-power women should increase their talking time. Therefore, women, regardless of power, will talk for the same amount of time, which should be less than high-power men and more than low-power men. In contrast, an explanation based on fear of backlash predicts that only high-power women will regulate their volubility, such that their talking time should be equivalent to low-power women as well as low-power men (which should all be less than high-power men). In short, a rapport explanation predicts that both low- and high-power women will adjust their talking time, relative to men, whereas a fear of backlash explanation predicts that only high-power women will adjust their talking time, relative to men.

A second means of testing these competing hypotheses is to explicitly measure the desire to establish rapport and fear of backlash and conduct mediation analyses to determine which underlying construct explains the differential effects of power on volubility for high-power men versus high-power women. Moss-Racusin and Rudman (2010) recently developed a fear of backlash scale, which has been shown to explain women's failure to self-promote. Thus, in Study 2, participants completed Moss-Racusin and Rudman's (2010) scale to assess fear of backlash as well as additional items specific to talking time. A second scale was also developed to measure the extent to which talking time was explained by a desire to establish rapport with others.

Method

Participants and procedure. Two hundred and six adult participants (mean age = 38.1, 59 percent female) were recruited from an online research database maintained by a northeastern university. The sample was restricted via pre-selection to participants who had workplace experience. Participants worked in a variety of occupations, and their median level of education was relatively high ("some college"). Participants were asked to imagine themselves as part of a team at work and then answered a series of questions about the likelihood of engaging in a number of behaviors during a meeting. Participants were randomly assigned to imagine either that they were the most powerful person in the meeting (high-power condition) or the least powerful member in the meeting (low-power condition). Participants randomly assigned to the high-power condition read as follows:

Imagine that you are a member of a four-person team of men and women trying to generate a marketing strategy for an emerging consulting firm. Of the four people on

your team, you have the most power and are therefore very likely to have influence over the final decision that your team makes.

In the low-power condition, the manipulation read as follows:

Imagine that you are a member of a four-person team of men and women trying to generate a marketing strategy for an emerging consulting firm. Of the four people on your team, you have the least power and are therefore unlikely to have influence over the final decision that your team makes.

Dependent measures. To measure *volubility*, after being exposed to these manipulations, participants were given a list of behaviors and were asked to indicate the likelihood that they would engage in these behaviors (1 = not at all likely, 7 = extremely likely). Four behaviors were specific to volubility and three behaviors were filler items so as not to alert participants to the fact that the study was specifically about volubility and power. The volubility behaviors were as follows: "Of the four people in your group, I would: 'Talk more than the other group members,'" "Spend more than the average amount of time talking compared to your other team members," "Make a lot of vocal contributions to the discussion," "Make sure to talk a lot so others will hear your points" ($\alpha = .89$). The filler behaviors consisted of "Be a reliable team member," "Try to get things done as efficiently as possible," and "Make an effort to see that the marketing strategy your team generates is truthful."

Mediating measures. To assess individuals' concern for *potential backlash*, Moss-Racusin and Rudman's (2010) fear of backlash items were used, with some adapted specifically for volubility. The items included "Would you be concerned that you might be disliked?" "Based on how you talked during the meeting, did you think about whether someone would think that you were acting 'out of line'?" "Would you be concerned that people would judge you for how much you talked?" "Would you worry that people thought you dominated the meeting?" and "Based on how much you talked, would you think that others would perceive you as too controlling?" To further assess concern over consequences, two items were added that assessed whether individuals would feel they would lose power: "Do you think that how much you talked in the meeting would cause you to lose power?" and "Do you think that how much you talked during the meeting would make you seem less effective?" All items were assessed using an 11-point scale on which 1 = not at all and 11 = very much so. Together, these items formed a reliable scale ($\alpha = .93$).

Establishing rapport. To test the hypothesis that women's volubility stems from a desire to establish rapport, participants were asked to think about their goals in the meeting in relation to their talking behavior, with the following stem: "In deciding how much to talk, would you have the following goals?" The items included "Connect with others in the meeting," "Establish a rapport with my colleagues," "Let my team know I value the group's discussion," "Get to know others in the meeting," and "Signal that I want our group to succeed." Responses were made using a 7-point scale, on which 1 = not at all, and 7 = very much so, and formed a reliable measure ($\alpha = .90$).

Funneled debriefing. At the end of the study, participants were asked to predict the hypotheses of the study and to list their thoughts about what the study might have been about. No participant was aware of the true purpose of the study.

Results

Volubility. A 2 (participant gender: male vs. female) $\times$ 2 (power prime: high vs. low) ANOVA indicated a significant interaction between gender and power, $F(1, 202) = 8.15, p < .01$. Specifically, men in the high-power condition (mean = 4.68, S.D. = 1.11) reported that they would talk more than men in the low-power condition (mean = 3.27, S.D. = 1.22), $F(1, 84) = 30.42, p < .001$. In contrast, women in the high-power condition (mean = 3.87, S.D. = 1.30) reported that they would talk equally as much as women in the low-power condition (mean = 3.52, S.D. = 1.47), $t(120) = 1.40, n.s.$ Moreover, specific comparisons revealed that only high-power women appeared to adjust their volubility such that their reported talking time was equivalent to low-power women, (as just reported) as well as low-power men $t(95) = .85, n.s.$, and all three conditions were significantly less than the high-power men, $t(202) = 5.15, p < .001$, via a planned contrast analysis. This pattern of results is consistent with the fear-of-backlash explanation, which predicts that only high-power women will adjust their volubility.

There was also a significant main effect of the power manipulation on predicted volubility, $F(1, 202) = 22.61, p < .001$, but this main effect was driven by the high-power male participants (as revealed by the significant interaction effect). There were no main effects of power or interactions between the power and gender on any of the filler items (all $ps > .86$).

Mediating variables. Female participants' concerns over backlash mediated the effects of power on volubility. Specifically, looking at the difference between male and female participants in the high-power conditions, participant gender was significantly related to volubility, $\beta = -.32, p < .001$, as was fear of backlash, $\beta = -.39, p < .001$, and these two variables were significantly related to each other, $\beta = .36, p < .001$. When both participant gender and fear of backlash were included as independent predictors of volubility, only the coefficient for backlash remained significant, $\beta = -.32, p < .001$. The coefficient for participant gender fell from .31 to .20, Sobel $z = 2.08, p < .05$.

In contrast, the desire to establish rapport did not mediate the effects of power and gender on talk time. Overall, women (mean = 5.74, S.D. = 1.05) were more likely than men (mean = 5.26, S.D. = 1.31) to say that they would want to establish rapport with their colleagues, $t(204) = 2.99, p < .001$, but this difference was not related to volubility. When both the desire to establish rapport and fear of backlash were included in the same regression model, the effect of rapport was not significant, and concern over backlash remained significant, suggesting that concern over backlash explains why high-power women talk less than high-power men, whereas the desire to establish rapport does not.

Discussion

Results from Study 2 demonstrated that independently manipulating power has different effects on men's and women's reported volubility. As observed in the Senate data from Study 1, male participants in Study 2 showed a significant positive effect of power on volubility, whereas female participants did not. This result is important because it replicates the interaction effect in a different population and organizational context and also establishes a causal link between increases in power and subsequent effects on volubility (for men).

Moreover, the particular pattern of results in Study 2 sheds light on the underlying reasons for this interaction effect. Only high-power women appeared to adjust their volubility such that their reported talking time was equivalent to low-power women as well as low-power men. This pattern is consistent with predictions stemming from a fear-of-backlash explanation and is distinct from the predictions based on differences in wanting to establish rapport. The fear-of-backlash explanation was further supported in mediation analyses. In short, though women did express a greater desire than men to establish rapport, only fear of backlash mediated the differential effects of power on volubility for high-power men versus high-power women.

A remaining question from this study concerns the extent to which self-reported measures of volubility map onto actual behavior. Given that the results of Study 2 were consistent with the actual behaviors exhibited by senators in Study 1, there is good reason to believe that the same interaction pattern should be replicated in an experimental context measuring actual talking behavior, though future research should examine this issue directly.

STUDY 3: IS FEAR OF BACKLASH JUSTIFIED?

Studies 1 and 2 found an interaction between gender and power on volubility such that men show a strong positive relationship between power and volubility, while women show no such effect. The results of Study 2 demonstrated that this difference is explained by women's concern about incurring backlash from appearing to talk too much. The goal of Study 3 was to examine whether this fear of backlash is in fact justified: Are high-power women evaluated negatively when they talk disproportionately more than others?

A second question concerns the source of potential backlash. This is a nuanced point about the nature of backlash effects. One interpretation is that men judge highly voluble women negatively because (in general) men are higher in power and therefore perceive women's power displays as a threat to their own power. In other words, it may be that women talk less solely because they are concerned about negative evaluations from male perceivers. A tenant of the status incongruity hypothesis, however, is that backlash stems from the more general incongruity between existing gender hierarchies and behaviors that display power. This theory predicts that both male and female perceivers should be equally likely to show backlash effects (Rudman et al., 2012) and thus should have equivalent negative evaluations of increased volubility in high-power women.

Method

Participants and procedure. Participants were 156 adults (mean age = 36.9, 45 percent female) who were recruited from the same online research database as Study 2. This study consisted of a 2 (target gender) x 2 (talking more vs. less) x 2 (participant gender) between-subjects design, with participants randomly assigned to one of four experimental conditions.

Participants first read a brief bio-sketch about a chief executive officer (CEO) and then completed the manipulation check and dependent measures. Besides changing the gender of the CEO named in the bio-sketch (either Jennifer or John Morgan), the bio-sketches were altered such that the CEO was presented as talking more or less than average in his or her workplace interactions. Specifically, at the end of the high-volubility bio-sketch, the stimuli read as follows:

Analyses of Mr. (Ms.) Morgan's interpersonal style in meetings have revealed that he (she) tends to offer his (her) own opinions as much as possible. Compared to other CEOs, Mr. (Ms.) Morgan talks much more than others in power.

In the low volubility condition, the bio-sketch read as follows:

Analyses of Mr. (Ms.) Morgan's interpersonal style in meetings have revealed that he (she) tends to withhold his (her) own opinions. Compared to other CEOs, Mr. (Ms.) Morgan talks much less than others in power.

Manipulation check. To insure that participants attended to the power manipulation, they completed three recall items: "What job does this person hold?" "According to analyses of the individual, did this person speak more or less than his or her colleagues?" and "What was the gender of the person you just read about?" All participants successfully completed the manipulation check.

Dependent measure. Using 7-point scales, subjects rated the CEOs in terms of their suitability for leadership. Items included "If it were up to you, would you hire this person as the CEO?", "How much power do you think this individual is entitled to?", and "Do you think this person will go on to achieve a higher position and more power in the future?" Additionally, participants rated the overall competence of the CEOs on the dimensions of competent, knowledgeable, and effective (1 = not at all, 7 = very much so). These items formed a reliable scale and were averaged to produce a single measure ($\alpha = .80$).

Results

A 2 (target gender) x 2 (high vs. low volubility) x 2 (participant gender) ANOVA revealed a significant interaction between target gender and volubility, $F(1,147) = 18.42, p < .001$. Specifically, comparison across the gender of the target revealed that participants gave significantly lower ratings to the female CEO when she was reported as being high in volubility (mean = 4.83, S.D. = 1.36) than when she was reported as being low in volubility (mean = 5.62, S.D. = .60), $t(76) = 3.24, p < .01$. In contrast, participants gave significantly lower

ratings to the male CEO who was reported as being low in volubility (mean = 5.11, S.D. = .87) compared with the male CEO high in volubility (mean = 5.64, S.D. = .70), $t(76) = 2.96$, $p < .01$. A further comparison across gender revealed that participants gave significantly lower ratings to the female CEO who was high in volubility than the male CEO who was high in volubility, $t(80) = 3.35$, $p < .001$. No other main effects or interactions were observed, and further analyses revealed that both male and female participants showed the same pattern of results (all $ps < .05$).

Discussion

Results from this study are informative for multiple reasons. First, these results suggest that high-power women are in fact justified in their concern that they will experience backlash from being highly voluble: a female CEO who talked disproportionately longer than others was rated as significantly less competent and less suitable for leadership than a male CEO who was reported as speaking for the same amount. Second, this effect did not interact in any way with participant gender in that both male and female participants were equally likely to exhibit backlash effects. This result lends further support to the status incongruity hypothesis and the notion that backlash effects result in beliefs about existing gender hierarchies that are shared among both male and female perceivers (Rudman et al., 2012).

Two additional findings emerged from these data. Specifically, a high-power woman who talked much less than others was judged as equally competent/deserving of leadership as a high-power man who talked much more than others. Similarly, a high-power male who talked much less than others was judged to be equally incompetent/undeserving of leadership as the high-power female who talked much more. Though speculative, this result suggests that the prescriptions for powerful men's and women's talking behavior may be much more comprehensive than originally hypothesized (i.e., powerful men *should* display their power, while powerful women *should not*).

GENERAL DISCUSSION

The results of three studies revealed a number of novel findings about the nature of power, gender, and volubility in organizations. Study 1 utilized data from the U.S. Senate, a real-world organization, and found a significant relationship between power and volubility on the Senate floor. This effect, however, was qualified by a marginal interaction between power and gender, such that male senators showed a significant relationship between power and volubility, while female senators did not.

Study 2 built on these findings using an experimental design in which power was directly manipulated. Consistent with the Senate data, there was a significant positive effect of power on volubility for male participants but not for female participants. Thus this experiment replicated the interaction effect found in Study 1 while also demonstrating a causal link between power and subsequent increases in volubility for men.

Furthermore, Study 2 helped to identify the underlying reasons for this difference between men and women. The results suggested that women do not show an effect of power on volubility because they are concerned about the

potential backlash that may result from appearing to talk too much. Examination of the specific pattern of data revealed that only high-power women adjusted their volubility such that their reported talking time was virtually identical to low-power women and low-power men, a pattern that is consistent with a fear-of-backlash explanation, rather than an explanation based on differences in men and women's desire to establish rapport. Additionally, subsequent measures indicated that while women did express a greater desire to establish rapport than men, only fear of backlash mediated the differential effects of power on volubility for high-power men versus high-power women.

Study 3 then examined whether powerful women are justified in their fear of experiencing backlash. Results showed that a female CEO who talked disproportionately longer than others in an organizational setting was rated as significantly less competent and less suitable for leadership than a male CEO who talked for an equivalent amount of time. Importantly, this effect was found among both male and female perceivers, which lends further support to the status incongruity hypothesis and the idea that backlash effects result from beliefs about existing gender hierarchies that are shared among both men and women (Rudman et al., 2012). Study 3 also revealed that a male CEO who was low in volubility was seen as less competent and suitable for leadership than his highly voluble male counterpart, while a female CEO who was low in volubility was equally competent and deserving of leadership as a highly voluble male CEO. . Though future research is necessary to explore this issue further, such a finding raises the interesting possibility that the expectations that individuals should behave in ways that conform to existing gender hierarchies may apply equally to women and men—a hypothesis that naturally follows from the status incongruity hypothesis but one that has received little attention in the backlash literature.

Contributions to the Existing Literature

The findings from these studies make a number of novel methodological and theoretical contributions. Study 1 is the first field study to examine whether objective measures of power and speaking time are related in a real-world organization. This is important because past research using college student samples are limited in their ability to generalize to organizational settings. Further, this study used objective indices of power (as opposed to subjective assessments), which are advantageous in that they allow for a more reliable, replicable measure that captures individual variations in power.

Second, because men and women in the Senate held equal levels of power, the study has the unique ability to help disentangle the effects of power and gender on volubility. Likewise, Study 2 also disentangled power and gender by manipulating power and measuring its effect on participants' volubility. This is a critical point for understanding the effects of power and gender on volubility, as power and gender are naturally confounded (Sidanius and Pratto, 1999). In fact, a review of the literature reveals that no previous study has independently manipulated power in an analysis of gender differences in volubility (see James and Drakich, 1993, for a review). Therefore, to accurately assess the extent to which gender and power independently contribute to volubility (or potentially interact), it is necessary to measure or manipulate power independent of gender, which was accomplished in Studies 1 and 2.

Third, these results may have important consequences for understanding the effects of power on behavior. As noted in the introduction, although past studies have found that experimental manipulations of power have an equivalent effect on both men and women, results of the present studies show that power has an interactive effect with gender on volubility (Studies 1 and 2). What explains this difference? One account is that volubility is distinct from other approach-type behaviors typically examined in the power literature (e.g., turning off a noisy fan, changes in perceptions of control, attending to goal-relevant information, etc.) in that people are, in some sense, aware of the "licensing" effect of power on volubility and the fact that talking disproportionately more than others may explicitly communicate power in an organizational setting. In turn, powerful women may actively avoid such behaviors because they are also aware of the negative backlash that may result if they are seen as challenging culturally held beliefs about existing gender hierarchies, as supported by the mediation measures of Study 2. Taken together, this analysis indicates that power should have an equivalent effect on men and women when the behavior in question does not explicitly communicate power to others (i.e., there is not an existing lay theory that the behavior in question is a power display), but an interaction with gender when the behavior does. Though speculative, this distinction provides a testable prediction that may be born out by future research.

Finally, this research has the potential to inform a more nuanced understanding of backlash effects. Effects on volubility are distinct from other backlash effects in that volubility is not a discrete event or behavior (e.g., directly asking for a promotion, initiating a negotiation, getting angry), but rather, it reflects a general appraisal about behavior over time. This suggests that backlash (or perhaps fear of backlash) not only operates at the level of individual prescriptions (what people should and should not do) but also at higher-level guidelines for behavior over time, which is arguably much more complex to monitor.

Conclusion

When Hillary Rodham Clinton began her campaign for the Senate in New York State in 1999, one of the first things she did was to embark on a very well-publicized "listening tour." She spent valuable political months visiting nearly every county in New York State. Obviously, she needed to win over voters in a state in which she had only resided for a matter of months. But more than that, the listening tour clearly signaled that she was going to listen and *not* talk at the voters—i.e., stay relatively silent while they told her what they needed from a senator. And, ironically, when Clinton engaged in a low-power behavior (i.e., listening rather than talking), she was given a great deal of power by virtue of being elected to office.

The present studies shed some light on why Clinton's strategy was successful and perhaps why a male politician might not engage in a similar "listening tour," but beyond this particular example, these data suggest that even "regular" women without political experience are acutely aware of the fact that talking more than others at work may not be a successful way to communicate their power to others. From the vantage of psychological processes, this result highlights an instance in which power does not appear to have an equivalent effect on men and women's behavior, and from the vantage of women's ability

to achieve success within an organization, it suggests that existing power hierarchies may be quite difficult for women to navigate and may require some creative strategies that may work better for them than for men.

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Impact Of Personality on Employee Well-Being

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ABSTRACT

Research on employee well-being has predominantly focused on health and individuals' work lives. Complementing past research on employee well-being, the impact of personality on overall well-being was examined. The objectives of the study were to determine the relationship between personality domains (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) and well-being. It was also aimed at determining significant personality domains that contribute towards well-being of lecturers. A total of 117 lecturers from a public university in Malaysia were chosen as samples. The NEO-FFI Personality Inventory by Costa and McCrae (1992) was utilized to measure five personality domains while The 5F Wellness by Myers and Sweeney (2005) was employed to measure well-being. Results indicated that all personality domains correlated significantly with well-being. Openness to experience and conscientiousness were found to contribute significantly to well-being of lecturers followed by extraversion. The impact of these findings signify that personality plays an important role in determining individual well-being.

Keywords: personality, well-being, lecturers

1. INTRODUCTION

Studies on well-being had focused on the affective experiences of subjects based on subjective evaluation towards individual everyday life (Ilies, Dimotakis, De Pater, 2010). Even though well-being is part of important life elements, focus has not zoomed on personality factors as determinants of overall psychological well-being among employees in organisations. Researchers have suggested that the differences in psychological well-being at work could be attributed to individual differences or personality.

Traditionally, the role of academicians has been one of nurturing and developing students' potential. In order to do this, they must remain physically and psychologically fit. However, there is apparent dissonance between academicians' perceived capabilities and expectations of their role. This may have implications on their physical and psychological well-being. The work task of academicians in higher learning institutions is increasing as institutions strived to compete among themselves. Therefore, the role of personality and its relationship to well-being is significant since it may determine the final outcome of employees' work performance. With increasing work load such as teaching, research and consultation, publication and community

work, the effect on well-being is nonetheless imperative to be studied.

In this study, the five-factor model of personality, often termed the Big-Five consist of Neuroticism (the tendency to exhibit poor emotional adjustment such as anxiety, impulsivity and fear), Extraversion (the tendency to be active, sociable, assertive and directive), Openness to Experience (the tendency to be creative, autonomous and curious), Agreeableness (the tendency to be cheerful, likeable and cooperative) and Conscientiousness (the tendency to have a sense of achievement and dependability).

Psychological well-being refers to overall well-being of individual that consists of : i) creative self (intelligence, control, emotions, work, positive humour); ii) coping self (leisure, stress management, self-worth, realistic beliefs); iii) social self (friendship, love); iv) physical self (nutrition, exercise) and v) essential self (spirituality, gender identity, culture identity, self-care).

1.1 Literature Review

DeNeve and Cooper (1998), in their meta-analysis study demonstrated the existence of a relationship between personality and several dimensions of subjective well-being which were affective and cognitive. Agreeableness and conscientiousness were said to increase the probability of positive experiences in social and achievement situations which directly related to well-being. On the other hand, openness to experience should lead a person to experience more positive emotional state. Similarly, extraversion has an influence on positive affect while neuroticism negatively influences well-being.

Marchand, Demers and Durand (2005) reported many people had physical consequences that were attributable to long-term exposure to stressful situations in the workplace. According to Maslow (1970), socialization was a significant element of wellness. This was confirmed by Campbell (1981). Both agreed that friendships were positively related to higher levels of satisfaction with life. Meanwhile, Crose, Nicholas, Gobble and Frank (1992) revealed possible relation between various elements which were social support, health behaviours, self esteem, personal control and the immune system. Employees who detached from others and conversely who were so connected as to be completely enmeshed with others, were outside the normal range of socialization and were considered less well.

Findings of another research by McWhirter (1990) pertaining to interpersonal relationships, revealed decreased activity of certain cells in the immune system and higher vulnerability to illness and were correlated to loneliness, as well as mild upsets and moodiness. Revelation of research by Maslow (1970) indicated a healthy (self-actualized) person in a self actualizing model as someone that showed deep feelings of sympathy and affection for human beings as well as a person who was enjoying profound interpersonal relationships. These two studies suggested social interaction and quality relationships between individuals at work or anywhere could directly related and formed part of the development of wellness since personality play a major role in shaping the entire social relationship.

Emotional encounters form part of all people's everyday life, as well as the working lives of employees. Emotional experiences can be draining or promotional for employees. The body's basic health and healing mechanisms respond favourably to positive emotions (love, hope,

optimism, and joy) and negatively to negative ones (hate, hopelessness, anxiety, depression, loneliness). The longer negative emotions prevail, the more harmful their influence on the health of individuals. Continuous negative emotions cause people to experience negative well-being that leads to disease in the long run. Frederickson (2002) argues that people should cultivate positive emotions in themselves and in those around them, towards fostering and achieving psychological growth and physical health. Research by Cartwright and Holmes (2006) supports the fact that when emotions and personality are properly managed, they will drive trust, loyalty, team spirit and improved organizational accomplishments.

Schutte, Malouff, Simunek, McKenley and Hollander (2002) mention the importance of cultivating positive emotion and higher self-esteem as characteristic of well-being among leaders. Most organizations produce highly stressful and pressured working conditions robbing employees of positive emotional experiences and inhibiting the well-being of employees. Positive emotions are facilitated by managerial actions that support clear outcome expectancies, give basic material support, encourage individual contribution and fulfilment, develop a sense of belonging, as well as promote a chance to progress and learning continuously (Harter, Schmidt & Keyes, 2003). Workplace attitudes that relate most to high-performing business-unit outcomes are the four positive emotions of joy, interest, contentment and love (Frederickson, 1998). These emotions also constitute part of the personality domains.

In contrast, emotional deficiency can lead to uncertainty, low morale, lack of initiative, creativity and innovation, poor work performance, stress, burnout and poor relationships between employees (Jonker and Scholtz, 2004). Negative personality emotions may limit cognition, but positive personality and emotions may broaden and build human potential (Frederickson, 2003). Positive emotions affect information-processing strategies, influences creative thinking and broaden cognitive potential (Fiedler, 1988). Smith (2002) reports that optimistic thinking can lead to well-being in people despite the fact that they sometimes do experience stressful situations. He states that neuropathy of functional salutogenic mechanisms can provide strategies to improve health and wellness. Neglecting the role of cognition and mental development can impact negatively on the well-being of employees.

Campbell, Converse and Rodgers (1976) argue that as much as a quarter of the variation in adult life satisfaction can be accounted for by satisfaction with work. Employee surveys (Wrzesniewski, McCauley, Rozin & Schwartz, 1997; Shantall, 2002) clearly show that a majority of employees desire greater meaning and personal development from their work and suggest that few employees see their work as enjoyable, fulfilling and socially meaningful. Job insecurity leads to downward spirals of lower morale, less commitment and underperformance performance, higher turnover as well as higher levels of social conflict (Schreurs, Van Emmerik, Notelaers, and De Witte, 2010). This lead to lower psychological well-being. In conclusion, personality and well-being is an integral part of a bigger entity in determining work performance and job satisfaction.

Based on the above issues, the objectives of this paper is to examine the relationship between the five factors of personality and psychological well-being as well as looking at personality impact on well-being among lecturers in higher learning institution.

2. METHOD

2.1 Sample and Procedure

The samples were 117 lecturers (academicians) of a public university in Malaysia. They were chosen based on a random sampling technique distributed across three major academic colleges. Questionnaires were distributed through the use of research assistants to each department according to the number of possible respondents. Samples were given one week to complete the questionnaire.

2.2 Instruments and Data Analysis

In this study, questionnaires were utilised as the main data source for analysis. Therefore, an instrument was formulated to integrate three parts. Part A consists of demographics information. Part B encompasses measurement on personality domains (The NEO-FFI Personality Inventory) by Costa and McCrae (1992). The inventory consisted of 60 items (12 measuring each domain). The five domains are neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. Cronbach's alpha values in the present sample were 0.80 (Neuroticism), 0.68 (Extraversion), 0.76 (Openness), 0.71 (Agreeableness) and 0.87 (Conscientiousness). Part C measures well-being of samples through The 5F Wellness Inventory by Myers and Sweeney (2005) and consisted of 72 items (originally 73 items but one item was taken out due to culture-inappropriateness factor). The Cronbach Alpha value was 0.94. Descriptive and inferential analyses were conducted using the Statistical Package for the Social Sciences (SPSS).

3. RESULTS AND DISCUSSION

3.1 Demographics

Among the respondents, 52 (44.4%) were males while 65 (55.6%) were females. Their age ranged from less than 30 years old to more than 50 years old with 45 respondents (38.5%) did not reveal their age. A total of 97 respondents (82.9%) were married while 17 (14.5%) were single and 3 (2.6%) were divorced. Thirty one respondents (26.5%) were holding administrative post (deans, heads of department, coordinators, directors etc.).

3.2 Level of Well-Being

Overall level of well-being was categorised into three categories namely low, moderate and high. A total number of 73 respondents (62.4%) were found to have a high level of well-being compared to 40 (34.2%) having moderate level of well-being and only 4 (3.4%) having low level (Figure 1).

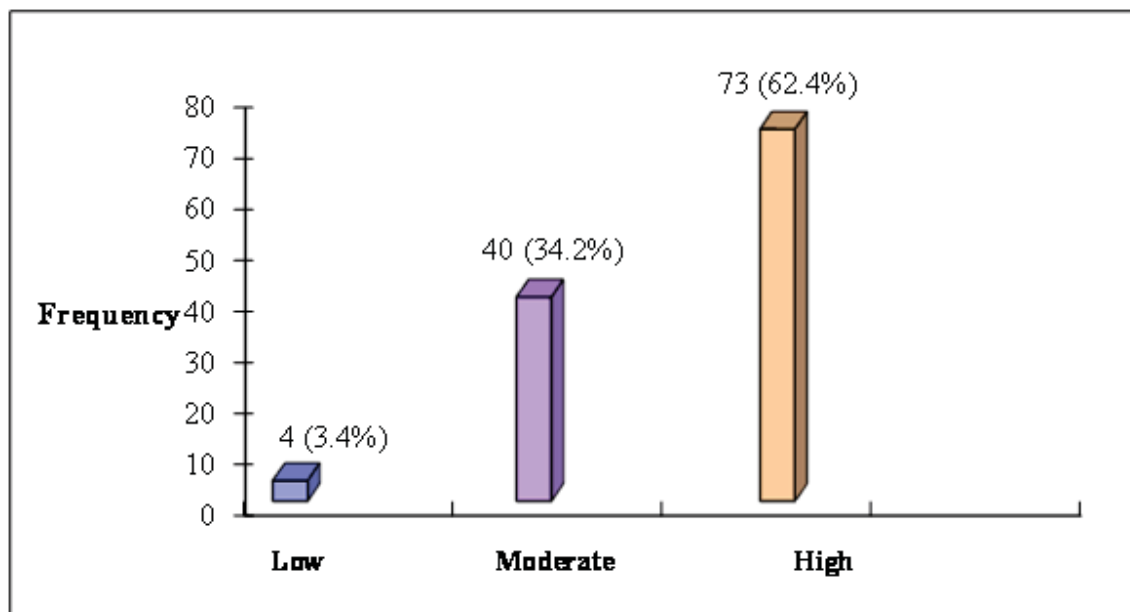


Figure 1: Level of well-being

In general, the results demonstrated that majority of respondents for this study experienced high level of psychological well-being at work. As a public higher learning institutions monitored by the government, steps have been taken to ensure that academicians and lecturers were given full support to execute their work. In line with individual key performance indicator as benchmark for work performance, adequate facilities were provided to ensure the delivery of quality teaching, research and publication of lecturers.

However, it is not surprising to admit that some respondents still experience moderate level of psychological well-being. These are acceptable since the university authority will not be able to fulfil and satisfy everyone.

3.3 Relationship Between Personality and Well-Being

Correlations between personality domains and well-being were calculated. Neuroticism was negatively correlated to well-being while other domains (Extraversion, Openness to Experience, Agreeableness and Conscientiousness) were found to be positively correlated to well-being (Table 1).

Table 1: Correlations for personality and well-being

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Well-Being	-0.40**	0.45**	0.42**	0.36**	0.54**

**p<.01

The above findings supported studies done by DeNeve and Cooper (1998), and, Booth-Kewley and Vickers (1994) in terms of significant relationship between personality and psychological well-being.

As can be seen in Table 2, Neuroticism was found to be negatively correlated to well being ($r=-0.40$, $p<.01$). Lecturers who are prone to have irrational ideas, less able to control impulses and have poor coping with stress will definitely experience poor self-creative and self-coping. Low psychological well-being is also related to instability, anxiety, moodiness and irritability at work. Negative emotional state due to neurotic traits will limit cognitive potential, create anxiety and depression. In addition, continue negative emotions will lead to negative psychological well-being.

Positive correlation between extraversion and well-being ($r=0.45$, $p<.01$) signified the existence of certain traits that contribute towards psychological well-being. Extraverted individual are more sociable, talkative, assertive and have high amounts of emotional expressiveness. Therefore, they are able to share their feelings with others and balance their unwanted emotional feelings. In that sense, they manage to have a better coping mechanism to absorb negative thinking that might affect their overall well-being. Lecturers with high Extraversion traits will develop positive personality and have better interaction with students, therefore, will acquire better psychological well-being.

Openness to experience individual have more active imagination, intellectual curiosity and have independence of judgement, and, therefore do have a better judgement on their self well-being. Positive correlation was found between these two variables ($r=0.42$, $p<.01$). Lectures who were often engulfed by multiplicity of job demand, role, responsibilities and array of duties will have better judgement with this kind of personality domain. They serve better in terms of perceiving their own well-being compared to those who are low in this Openness to Experience domain and experience more positive emotional state.

Looking at Agreeableness domain, it was significantly related to well-being ($r=0.36$, $p<.01$). Although the strength of the relationship was rather weak, it clearly depicted the existence of bond between individual's Agreeableness traits and well-being. Agreeableness personality traits such as trust, sympathy, kindness, affection and other pro-social behaviour will increase the well-being of individual. Due to the nature of academic world that requires pleasant personality when dealing with students, high level of Agreeableness domain is needed to ensure positive well-being of lecturers in university. Kindness, affection and trust are essential elements in pro-social behaviours that need to be demonstrated by lecturers.

Lastly, conscientiousness and well-being was positively correlated ($r=0.54$, $p<.01$). Conscientiousness would enhance the possibility of constructive encounters at work and in return linked to individual's well-being. Their high level of thoughtfulness with good impulse control and goal-directed behaviour tend to make them organized and mindful of details. In addition, it will increase positive experiences in social and achievement situations which are directly related to well-being. As lecturers, they should demonstrate high level of thoughtfulness with goal directed behaviour as role model for students.

3.4 Impact of Personality On Well-Being

The influence of each personality domain on well-being was analysed using regression analysis. Results found that three personality domains namely Extraversion, Openness to Experience and Conscientiousness did have an impact on overall well-being (Table 2).

Table 2: Summary of regression analysis for personality domains and well-being

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
R ² = .445, F = 808, p<.001	B	Std. Error	Beta		
(Constant)	98.038	33.811		2.900	.005
Neuroticism	-.559	.333	-.144	-1.678	.096
Extraversion	1.349	.463	.228	2.914	.004
Openness	1.866	.545	.260	3.425	.001
Agreeableness	.417	.427	.081	.977	.331
Conscientiousness	1.080	.400	.260	2.701	.008

The personality domains explain 44.5 percent of the variance (R Square) in well-being and significant as indicated by the F value of 17.808 (p<.001). Based on the beta and t values, Openness to Experience ($\beta=.260$, $t=3.425$, $p<.05$) and Conscientiousness ($\beta=.260$, $t=2.701$, $p<.05$) were found to be the best predictor to well-being compared to Extraversion ($\beta=.228$, $t=2.914$, $p <.05$). The overall impact of Openness to Experience, Conscientiousness and Extraversion on well-being can be related to the nature of work and the overall environment of a higher learning institution. Day to day interaction with students required lecturers to be able to manifest personality traits that are acceptable to the student community. For example, students expect the lecturers to be having active imagination in teaching, aesthetic, attentive to inner feelings and insights (Openness to Experience). In addition, academic work requires lecturers to be prone toward planning, organizing and carrying out interesting project based learning as part of their everyday assignment since these are indicator of scrupulous and punctual behaviours (Conscientiousness). Finally, Extraversion traits require lecturers to be prototypical assertive, active, talkative and sociable in order to be able to perform well in lectures as well as dealing with individual student.

These personality domains (Openness to Experience, Conscientiousness and Extraversion) that embed specific traits may well influence the overall psychological well-being of individual in terms of creative self, coping self, social self, physical self and essential self. With high psychological well-being through these traits, better work performance and job satisfaction may be achieved.

4. CONCLUSION

Unproductive administration of well-being where the management or administrators of an organization only focuses on physical well-being may impair organizational functioning namely overall work performance and job satisfaction. The negligence in looking at employees' well-being may impede the strategic development of a university. Hence organizations are accountable to support and encourage employees to develop and demonstrate proper personality traits in ensuring high individual psychological well-being. Support from management that includes clear outcome expectancies, basic material support, encouraging individual contribution and fulfilment, developing a sense of belonging as well as promoting a chance to progress and continuous learning is needed to ensure overall psychological well-being of lecturers. This will promote positive and healthy environment in a higher learning institution.

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Leadership of Entrepreneurs: Structural Relationship among Psychological Characteristics, Teamwork, and Success in Business.

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ABSTRACT

The purpose of this research was to study the relationship among leadership, emotional intelligence, intrinsic motivation, adversity quotient, external and internal locus of control, teamwork, and business success of SME entrepreneurs. The samples were 542 SME entrepreneurs. Path analysis was processed by the statistical program. The results showed that emotional intelligence, intrinsic motivation, adversity quotient, and internal locus of control had positive direct effect on leadership of entrepreneurs, and teamwork at .05 level of significance. External locus of control had negative direct effect on leadership of entrepreneurs at .05 level of significance. Beside that, leadership of entrepreneurs had positive direct effect on teamwork at .05 level of significance. Leadership of entrepreneurs and teamwork had positive direct effect on business success of SME entrepreneurs at .05 level of significance.

Key Word: Leadership, Entrepreneur, SMEs, Psychological Characteristic, Teamwork, Success

1. INTRODUCTION

At present, one of the prominent businesses widely attractive in Thailand is a business in the so called small and medium enterprises, or SMEs. It is a business with the largest number of enterprises in Thailand. It is a business anticipated to contribute to economic development of the country as an essential foundation supporting larger businesses to be more efficient. Yet, organizational leader or entrepreneur is another key factor representing a successful indicator of the organization. This leader is an important person or a key to efficiency and effectiveness of organization. Numerous studies and researches in the country and abroad on the significance of a leader and leadership confirm that leader and leadership has effects on efficiency and effectiveness, outputs of personnel and personnel development of an organization and other related factors (Tucker, 1990; Bass & Avolio, 1994; Chongvisal, 2002).

In addition to leadership with several psychological characteristics of entrepreneur essentially contributing to success of business, psychological concept shows that leader or executive personnel needs to have emotional intelligence, or EQ, which is a capacity of a person to be alert and understand emotion and feeling of oneself and others, and be able to manage and utilize one's emotion and develop relationship with others, (Goleman, 1998). Renowned scholars in EQ says that EQ and action of leader has direct effects on his/her subordinates and performances of team and organization, behavior as a good member (Chongvisal, 2002, 2008). In addition to EQ, another important factor is the adversity quotient, or AQ, which is a factor related to

perseverance, diligence and capacity to win over difficulties, as well as capacity in managing problems and crisis, especially in the present age of change and high competition. Capacity of an entrepreneur in facing and winning over obstacles is highly helpful for success in business performance, outputs and productivity of an organization at a significant degree (Stoltz, 1997).

At present, a researches discover that intrinsic motivation is greatly important and a key characteristic resulting in surprising behavior and performance of personnel. It is found that a person with intrinsic motivation is a person with commitment to achievement with their capacity. They are convinced, exerted and sacrifice to the work without expecting external reward, which would greatly contribute to success in the work and result in good quality outcomes (Choochom et al, 1999). Beside intrinsic motivation, locus of control is another key characteristic impacting difference in decision making of individuals and influencing pattern of behaviors, especially in performance expressed according to belief of each individuals. In undertaking any business activity, therefore, if entrepreneur has locus of control with a belief that everything is a result of his/her thinking or action, he/she will be attentive and committed to such enterprise to achieve success.

Apart from various psychological characteristics of entrepreneurs that would lead to successful enterprise, teamwork is also a factor recognized as having high importance for successful business since successful teamwork will foster group dynamics, collaboration and cooperation of all concerned parties in that organization. The result of this teamwork contributes to success of business enterprise.

Given various related concepts, it is found that in SME entrepreneur is a very important person since he/she is a creator and operator of business by him/herself. Furthermore, as these businesses are small or medium in scale, entrepreneur is, therefore, close to operation and supervision. As such, leadership and various psychological characteristics plays a significant role in the successful business performance. Therefore, the researcher is interested to study structural relationship of leadership, emotional intelligence, adversity quotients, locus of control, intrinsic motivation, teamwork and success in business of SME entrepreneurs, the result of which would be applied as guidelines for selection, promotion and planning on capacity building of Thai SME entrepreneurs who will be key actors in driving business of the country for success and achieve goal of development, as well as increasing competitiveness of the country.

2. RESEARCH OBJECTIVES

1. To study level of leadership, emotional intelligence, adversity quotient, locus of control, intrinsic motivation, teamwork and success in business performance of SME entrepreneurs;
2. To study structural relationship of leadership, emotional intelligence, adversity quotient, locus of control, intrinsic motivation, teamwork and success in business performance of SME entrepreneurs.

3 RESEARCH METHOD

The population of this research is SME entrepreneurs in 3 businesses, namely production,

retailing and services, with simple random sampling using computer program from name list of SME entrepreneurs from the source of state agencies related to SMEs by random sampling of 542 SME entrepreneurs in the 3 business branches in different regions of the country. Data collection in this research will be done by sending out by post questionnaire, and the research team will make field visit to collect information using questionnaire directly from entrepreneurs.

This research will employ 7 instruments for data collection, namely 1) leadership scale of SME entrepreneurs, 2) emotional intelligence scale, 3) adversity quotient scale, 4) locus of control scale, 5) intrinsic motivation scale, 6) teamwork indicator, and 7) success in business scale. Quality identification of all instruments used in this research is done by content validity and reliability of all scale through a calculation of Cronbach alpha coefficient and Item-total Correlation.

Data identified from personal questionnaire will be classified for frequency and percentage, and variables mean from indicators, standard deviation, variables, Pearson's Product Moment Correlation through statistical and Path Analysis using computer program software.

4 RESEARCH RESULTS AND DISCUSSION

The results of descriptive analysis

Table 1 Mean, standard deviation, and correlation coefficient of variables of the samples

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. LEADER	3.06	.48	1.000	.610**	.576**	.554**	.587**	-.269**	.441**	.509**
2. EQ	2.69	.45	.610**	1.000	.619**	.428**	.614**	-.133**	.453**	.463**
3. TEAM	2.84	.51	.576**	.619**	1.000	.470**	.533**	-.150**	.377**	.513**
4. MOTIV	4.04	.59	.554**	.428**	.470**	1.000	.706**	-.346**	.540**	.473**
5. AQ	3.88	.54	.587**	.614**	.533**	.706**	1.000	-.301**	.623**	.538**
6. EXLOCUS	2.36	.68	-.269**	-.133**	-.150**	-.346**	-.301**	1.000	-.322**	-.160**
7. INLOCUS	3.79	.54	.441**	.453**	.377**	.540**	.623**	-.322**	1.000	.472**
8. SUCCESS	3.66	.61	.509**	.463**	.513**	.473**	.538**	-.160**	.472**	1.000

**p < .01

LEADER = Leadership of SME entrepreneurs

EQ = Emotional intelligence

TEAM = Teamwork

MOTIV= Intrinsic motivation

AQ = Adversity quotient
EXLOCUS = External locus of control

INLOCUS = Internal locus of control

SUCCESS = Success in business

Table 1 shows that most observed variables studied have positive correlation coefficient (between .377 to .706), except variable of external locus of control that has negative correlation with other variables (between -.133 to -.346), and all variables have correlation coefficient with statistical significance at .01. Mean of most variables are considerable high, except belief in

external locus of control that has considerable low.

Analysis of Effects

In analyzing model of variables based on the research conceptual framework as the factors of success in business performance of SME entrepreneur, we have not found that the first model is harmonious with empirical data with Chi-square valued of 99.81 with degrees of freedom 6 ($p=.00$), Goodness of fit index (GFI) = .96, Root Mean Square Error of Approximation (RMSEA) = .17 and Comparative fit index (CFI) = .95. Therefore, the model is improved with theoretical knowledge and advice of data analysis program. The result of the test shows harmony of the modified model and empirical information with Chi-square valued at 9.59 with degrees of freedom 7 ($p=.21$), Goodness of fit index (GFI) = 1.00, Root Mean Square Error of Approximation (RMSEA) = .02 and Comparative fit index (CFI) = 1.00.

Therefore, we can indicate the size of effects of variables that are cause factors of success in business performance of SME entrepreneur as shown in the following table.

Table 2 Total effect, indirect effect, and direct effect of causal variables on business success of SME entrepreneurs.

Outcome variables Antecedent variables	Leadership of SME entrepreneurs			Teamwork			Success in business		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Emotional intelligence	.40	-	.40	.50	.10	.40	.19	.19	-
Intrinsic motivation	.25	-	.25	.21	.06	.15	.09	.09	-
Adversity quotient	.14	-	.14	.03	.03	-	.24	.03	.21
External locus of control	-.09	-	-.09	-.02	-.02	-	-.02	-.02	-
Internal locus of control	-	-	-	-	-	-	.19	-	.19
Leadership of SME entrepreneurs	-	-	-	.25	-	.25	.24	.06	.18
Teamwork	-	-	-	-	-	-	.23	-	.23
R ²	.50			.46			.41		

Remarks : All effect sizes were statistically significant at level.05

From table 2, results of analysis of direct and indirect effects can be concluded that external latent variables with direct effects on internal latent variables significant statistical at .05 is emotional intelligence, which has positive effect on leadership of SME entrepreneur and teamwork with standard effect co-efficient value at .40 and .40 respectively. This finding also corresponds to the research finding that emotional intelligence is related or has effect on leadership (Kobkultanachai, 2003, Chongvisal, 2008, Barling, Viriyavidhayavongs & Jiamsuchon, 2001), and the concept which found that emotional intelligence is a key factor supporting successful teamwork (Chongvisal, 2001). Intrinsic motivation yields positive effect on leadership of SME entrepreneur and success in business performance with standardized path co-efficient at .14 and .21 respectively. This finding corresponds to the concept which found that capacity in adversity quotient has relationship with efficiency of management of leader (Yukl, 2006). The research also found that adversity quotient can forecast characteristics of factors, such as results of performance and productivity (Stolz, 1997). The belief that external locus of control has negative effect on leadership of SME entrepreneur with standardized path

co-efficient $-.09$, which corresponds to the research finding that belief in external locus of control has negative relationship with leadership (Saelim, 2003) and also the concept believing that external locus of control is less efficient than the belief that internal locus of control in operation, profit and growth of a company (Miller, & Toulouse, 1986 cited in Yukl, 2006). Regarding the belief that internal locus of control has positive effect on success in business with standardized path co-efficient at $.19$, which corresponds to the concept and the research finding that the belief in internal locus of control on result of performance and success in business operation (Pasee, 2003, Howell & Avolio, 1993 cited in Yukl, 2006).

Internal latent variables that have significant statistical direct effect on internal outcome latent variables at $.05$ is leadership of SME entrepreneur with positive effect on teamwork and success in business performance standardized path co-efficient at $.25$ and $.18$ respectively, which corresponds to the research finding that leadership has effect on teamwork (Dionne & et al, 2003), and the concept that finds leadership as having effect on success of business operation (Jantasen, 2006, Saguanpongse, 2006, Chongvisal, 2008, Rattanaipisit, 2008; Mehta, Dubinsky & Anderson, 2003), and teamwork has positive effect on success of business performance with standardized path co-efficient at $.23$, which corresponds to the research finding that teamwork has effect on performance, efficiency and effectiveness of teamwork (Santawee, 2004).

External latent variables with significant statistical indirect effect on Internal latent variables at $.05$ is emotional intelligence with positive effect on teamwork through leadership with standardized path co-efficient at $.10$, and has positive effect on success of business performance through leadership and teamwork with standardized path co-efficient at $.19$. Intrinsic motivation variables have positive effect on teamwork through leadership of SME entrepreneur with standardized path co-efficient at $.06$, and also has positive effect on success of business performance through leadership and teamwork with standardized path co-efficient at $.09$. Variables on adversity quotient have positive effect on teamwork through leadership with standardized path co-efficient at $.03$, and also has positive effect on success in business operation through leadership and teamwork with standardized path co-efficient at $.03$. Variables on external locus of control have negative effect on teamwork through leadership with standardized path co-efficient at $-.02$, and also have negative effect on success in business performance through leadership and teamwork with standardized path co-efficient at $.02$. Besides, it is also found that leadership has positive effect on success in business performance through teamwork with standardized path co-efficient at $.06$.

Furthermore, result of data analysis shows that emotional intelligence, intrinsic motivation, adversity quotient, belief in external locus of control can explain variance of leadership of SME entrepreneur at 50% , and also that emotional intelligence, intrinsic motivation, leadership of SME entrepreneur can explain variance of teamwork at 46% . In addition, leadership, teamwork, adversity quotient, internal locus of control can explain variance in success of business performance at 41% .

Result of effect that can explain success in business performance of SME entrepreneur in the modified model can show effects of variables shown in Figure 1.

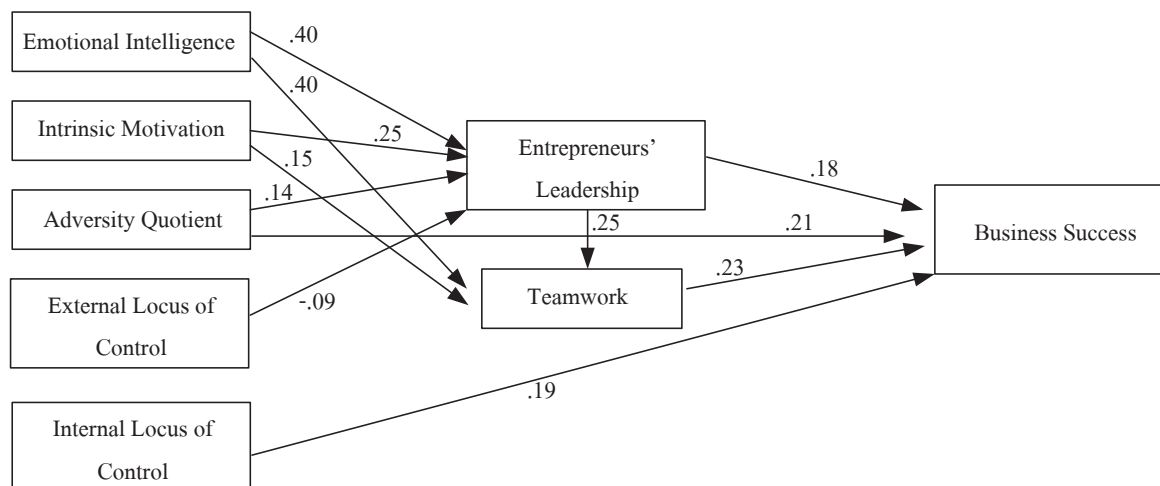


Figure 1 Structural relationship model of causal variables on business success of SME entrepreneurs

5 CONCLUSION AND RECOMMENDATIONS

The significant research finding shows that emotional intelligence, Intrinsic motivation, adversity quotient, internal locus of control have positive effect on leadership of SME entrepreneur and teamwork, while leadership of SME entrepreneur have positive effect on teamwork. In addition, leadership of SME entrepreneur and teamwork have statistical significant positive effect on success in business performance. Therefore, in selection, identification, promotion and development of entrepreneur should use these psychological characteristics as criteria, including significant characteristics in development of entrepreneur to have higher level of these characteristics.

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Antecedents and Effect concerning Scientist Personality of Science Students in Bangkok, Thailand

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Abstract

The purpose of this study was to examine a causal relation model of antecedents and effect concerning scientist personality of science students toward scientific inquiry behavior. The sample consisted of 1,000 undergraduate students who studied in faculties of science at the third and fourth year level from 3 Universities in Bangkok, Thailand. The 8 reliable and valid parts of questionnaires were used to collect data. Data were analyzed by utilizing descriptive statistics and structural equation model. The results were revealed that the proposed model was modified to fit the empirical data. There were not the direct effect of socialization at family on scientist personality and scientific inquiry behavior, however, there was the indirect of socialization at family on scientific Inquiry behavior through influence of peer group. For university environment, it had direct effect on scientist personality and scientific Inquiry behavior. In addition, scientist personality had direct effect on scientific Inquiry behavior. In terms of influence of peer group, it had not direct effect on scientist personality but it had not direct effect on scientific Inquiry behavior.

Keywords: scientist personality, socialization at family, university environment, influence of peer group, scientific inquiry behavior

1. INTRODUCTION

Science plays an important role in the country development nowadays. This is because scientific knowledge is the basis for creating technology and facilities as well as elevating the living standards of people. From this reason, several countries emphasize on their scientific development especially in scientific manpower which is considered to be the direct driven factor. For Thailand, it is considered to be important in developing scientific manpower as well. This can be seen from the cooperation of public and private sector to promote the knowledge, information, including fund. In improving personal potential for becoming scientists, apart from

developing the knowledge gained from the academic institutes, scientist personality also deserves to be focused as it will bring success to work and creation of good tasks of scientists (Konakom, 2004:2). In countries with scientific progress, people pay attention to promote scientific knowledge since school age so that the kids can be developed to have higher competence, interest, and intention to become competent scientists in the future (Herman & Pravalpruk.1983:59). In Thailand, the scientific teaching is provided for elementary, secondary, and university levels for making Thai kids have knowledge in general science and specific science, especially for the study in university level with distinctiveness in teaching professional science. However, only knowledge cannot make the scientific students who study in the academic institutes become perfect scientists to initiate good works or have good effectiveness as scientific students. They also have to possess scientist personality which are internal factor affecting the behavioral performance following proper roles and possibly affecting the selection of occupation in the future. From the above reasons, this research set the goal to study antecedents and effect concerning scientist personality of students studying in the Faculty of Science of 3 university in Bangkok having goal in producing the graduates in science and technology directly for serving the society.

2. Research Objectives

To examine a causal relation model of antecedents and effect concerning scientist personality of science students toward scientific inquiry behavior

3. LITERATURE REVIEW

3.1 Scientist personality

For the concepts about scientist personality, many academicians paid serious attention on the concepts continuously i.e. a concept of Roe (1961) who created some researches describing about scientist personality in 1953 and 1956. His work in 1961 summarized the scientist personality into 6 characteristic traits. First, a scientist was a creative person and always explores the new experiences, participated in activities, and admired freedom and observance. Second, scientist was a person who felt satisfied with current situation, had high endurance with suspicious things and love to address the problem. Third, it was emphasized on one who was able to control own feeling's motivation so strongly that he/she became ready for thinking about various things. Fourth, it was about how scientist views the relationships between persons as Roe mentioned that this type of person hardly liked sociability; in other word, he/she had less relationship with others. Fifth, scientist was one who prefers working with objects and ideas rather than with people. Finally, scientist liked calculation on nature. Later, during this nearly period, Woodburn and Oburn (1965) also identified the personality of scientist. They mentioned about some scientist characteristic traits which were both similar to and different from Roe's concept. Those were curiosity, seeking, freedom of thinking, imagination, intelligence, knowledge and high endurance. Both concepts were considered as the significant start to definite scientist personality of many researches whose became interested in this study.

3.2 Socialization at family

Family is considered as an agent of social influence responsible for bringing up the members, creating basic personalities to members of society from generation to generation. The parents

will teach their children about some attitude, value, and information related to society through spoken language and manners. People often learn firstly from value and expectation in many roles from their families. According to this study, the researchers are interested in the nurturing styles of families especially for parents who nurture their children by encouraging and being the role model in knowledge seeking. Nurturing by encouraging is suitable for creating quality among Thai children to have desirably mental and behavioral characteristics. Nurturing by encouraging means parents treating their children with love and care. They are close to their children and do the activities altogether. Moreover, this also includes intimacy, support, help, and importance given to their children (*Panthumnawin, Choochom & Vanindananda. 1985: 4-5*) Being the role model means parents or nurturers behaving to affect the perception of children. When the children have observed, they may imitate such behaviors which can be desirable and undesirable behaviors in children Therefore, the role models should realize in behaving good for their children both frankly and secretly (*Waninthanon.2002: 160*).

3.3 University environment

The academic institutes or universities are important in the socialization process which are responsible for giving academic knowledge, skills, belief, and value which are social culture to learners. Teachers or instructors are very important for the perception, interpretation, and specification of methods of learners to respond the occurring interaction. Teacher personalities mean physical and mental characteristics affecting learners. Teachers must present the sincerity, offer help, be the role model in behaviors, and encourage learners to do the right things. The good teacher personalities will help learners to be improved well. However, teachers must possess several capabilities, for example, be omniscient in contents, able to efficiently choose teaching techniques, often seek for knowledge, and have skills in scientific procedure, etc. For atmosphere of university are related to the atmosphere inside the university both physical and mental. This is because it affects the emotion and feeling, characteristics development and desirable behaviors. Therefore, the factors encouraging good atmosphere of university must be provided, for example, provision of services according to the interest and demand of students. The interest of academicians on the atmosphere of academic institutes is both for the whole environment and class atmosphere.

3.4 Influence of peer group

Peer group was the agent which is important to students especially for modern society with academic institutes where children and teenagers are gathered for long time resulting in the specific culture of teenagers (*Iamworrameth.2011:online*). Peer group was the important group for creating personalities of people in order to be able to live suitably and helpfully. Regarding the study in university level, the learning is not only from teachers, but the students also learn from the interaction with several kinds of friends in several situations with different goals. Especially for the interaction related to the study or activities related to the development in intelligence, it will be very good for students. Chudech (1991 : 41) says that the perception from the interaction with friends or from doing the activities with friends. Friends are usually giver and taker of experience from meeting, talking, discussing, exchanging opinions, or talking about the situations they have seen or have conducted the behaviors together with friends while they are studying in the universities. Moreover, friends are also important for personalities of students as the students often gather in groups inside the academic institutes. These groups affect the motivation and academic effectiveness (*Uniphan.1984 : 61*). According to the study of

Wetchasart (2004: 107-110) about the procedure to become physicists, it is found that the interaction between students and friends make the students improve themselves to become good students and good at mathematics. Besides, this also creates the belief, attitude, value, and ideal related to the attempt, determination, reliability, faith in learning, interest or preference in mathematics and trust in logical ideas. These are important conditions helping students to be successful in learning and result in the process of change and continual development of students to become physicists.

3.5 Scientific inquiry behavior

Regarding scientific inquiry behavior, a lot of academicians explain the meaning and call it differently, for example, seeking for scientific knowledge, investigation to find scientific knowledge, etc. However, they are all from the vocabulary root of scientific inquiry. The word “inquiry” means skills used in proposing the question, finding the truth of things. The students will learn to be delicate and sensible so that the question is raised to the required fact (Prayoon.2548:75). Kuslan & Stone (Laohaphaiboon.1999: 10 citing Kuslan & Stone.1969:15-16) says that scientists uses 6 steps for scientific inquiry; identification of problems, making hypothesis, investigating and finding evidence for proving the hypothesis, evaluating the accuracy of hypothesis, reviewing the hypothesis as necessary, and bringing the conclusion to be used with other similar problems. The learning sources which can bring scientific knowledge consisted of academic persons who can provide knowledge in many fields of science, for example, chemical, astronomy, 2) academic places such as forests, national parks, zoos, scientific centers, libraries (Jindanurak & Songsawang.1994:307-308) 3) and sources of learning from media such as mass media, published media, and electronics media (Tipsing.2002 :30). The scientific inquiry may have to use various learning sources from people, places, and media with scientific knowledge. According to this research, the behaviors in scientific inquiry means the students seek for scientific knowledge from several learning sources which are academic persons such as fathers, mothers, parents, teachers, gurus, and friends, academic places such as libraries, learning centers, including scientific learning sources which are published media, radio, and television.

4. RESEARCH FRAMEWORK AND HYPOTHESIS

4.1 Research Framework

According to this research, the researcher specifies the framework as follows:

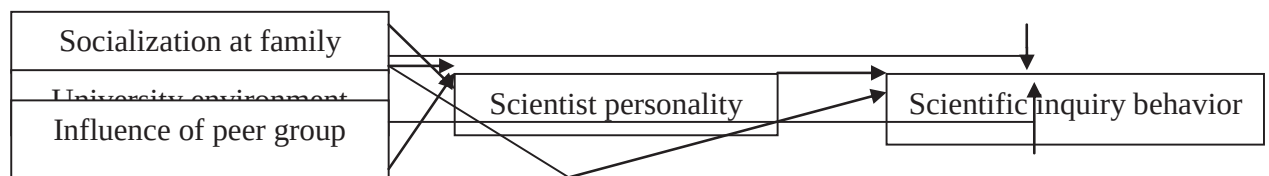


Fig. 1: Research Framework

4.2 Hypothesis

Socialization at family ,University environment ,Influence of peer group had direct effect on scientist personality and scientific inquiry behavior. Scientist personality had direct effect on scientific inquiry behavior

5. METHODS

The population used in the study consists of 3,358 undergraduate students of the 3rd and the 4th year of 2011, from the Faculty of Applied Science, King Mongkut's University of Technology North Bangkok, Faculty of Science, King Mongkut's University of Technology Thonburi, and King Mongkut's Institute of Technology Ladkrabang. The sample consisted of 1,000 students by Stratified random sampling.

Data were collected by questionnaire was divided into 8 parts which were: 1) *General data of responders* 2) *University environment* measured about the influence of teachers (Alpha Coefficient = .932) 3) *Atmosphere of university* (Alpha Coefficient = .901) 4) *Influence of peer group* (Alpha Coefficient = .920) 5) *Socialization at family about the role models of parents* used the measurement of Roamchart (2010) (Alpha Coefficient = .865) 6) *Socialization at family about nurturing by encouraging* applied from the questionnaire of Panthumnawin, Vanindananda, and Chuawanlee (2005) (Alpha Coefficient = .951) 5) 7) *Scientist personality* applied from the measurement of Wongpinpech (2010) (Alpha Coefficient = .956) 8) *Scientific inquiry behavior* (Alpha Coefficient = .842).

Data were analyzed by utilizing descriptive statistics and structural equation model. for examining the fitness of models following theoretical hypothesis and empirical data.

6. RESULT AND DISCUSSION

The proposed model was modified to fit the empirical data ($\chi^2 = 6.09$, p – value = .11, GFI = 1.00, AGFI = .98, SRMR = .01, RMSEA = .03, CN = 1861.42). The results of hypothesis tests were as follows:

Socialization at family

There were not the direct effect of socialization at family on scientist personality and scientific Inquiry behavior, however, there was the indirect of socialization at family on scientific inquiry behavior through influence of peer group. This research result does not agree with the researches of several academicians. For example, Pipatsatukit (2001) found that the positive communication from parents had positive relationship with scientist personalities and the positive communication from mothers also predicted scientist personality, Konakom (2004), it was found that the family environment in the family relationship and equally nurturing is the factor affecting scientist personalities. The research result could explain that some university students had relationship with their families less than those of elementary and secondary levels. This was because some university students lived far from their parents who lived in the rural areas. In the case of families living in urban areas, the parents did not have enough time to present the behaviors related to knowledge seeking, for example, reading, observing, inquiring, talking and exchanging the opinion with family members or other people, observing news and other changes occurring to be the role models for students. This also means the close care, support and help in education which may be less causing the influence from families to students less than the influence from friends and academic institutes which the students have more time of interaction. The things which the students receive from their families are in the form of encouragement in studying and the support in something necessary for their study, for example, support in expenses and scholarships. Although the families do not have direct influence, the families can use the

friends of students for encouraging the science study.

University environment

It was found that university environment directly effected on scientist personality and scientific inquiry behavior. This research result can explain that university environment was the most important variable for the development of scientist personality. Considering the influence from teachers, The teaching, exchange of opinion, be the role models, and conduct the activities together could make the students learn and develop their scientist personalities. Various activities were used in everyday teaching, for example, activities on experiments, academic seminars, project commitment, learning activities by stimulating with questions, etc. These activities could stimulate the students to improve working in teams ,responsibility, curiosity for knowledge seeking, self confidence, and static emotion. Moreover, the teaching behaviors of teachers could also represent the sincerity, offer help, be the role model in behaviors, and encourage learners to do the right things. The students would receive advice, consultation, recommendations, encouragement, and imitation of positive behaviors beneficial for their study. This research result agrees with the statements of Office of the National Education Commission (2000) that the interaction between students and teachers was a very important factor in the forms of friendship, care, and doing activities together. The learning process was the exchange in ideas, thoughts and problem solving. The interaction would create the happy learning and good improvement both intellectually and personally (Roamchart.2010). Furthermore, the element of atmosphere in the academic institutes was also considered to be another supporting factor as general conditions and the arrangement of environment in the university could affect the learning of science of students, for example, arrangement of places for developing the learning of science of students, arrangement of academic corners, exhibition, boards, signs and provision of budget for promoting the activity arrangement such as for purchasing materials. Learning activities of science and technology required costly equipments and materials as well as beneficial services according to the interest and demand in developing the learning of science of students.

Table 1 Direct effect (DE) ,Indirect effect (IE) and Total effect (TE) of Antecedents and Effect variables and Squared Multiple Correlation: R^2)

Antecedents	Effect variables								
	Influence of peer group			Scientist personality			Scientific inquiry behavior		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
Socialization at family	.53**	-	.53**	-	-	-	-	.08**	.08**
University environment	-	-	-	.67**	-	.67**	.23**	.19**	.42**
Influence of peer group	-	-	-	-	-	-	.15**	-	.15**
Scientist personality	-	-	-	-	-	-	.28**	-	.28**
R^2		.28			.45			.31	

** sig. = .01

Influence of peer group

It was not found that peer group directly effected on scientist personality but it was found that peer group directly effected on scientific inquiry behaviour. This research result disagreed with the research result of many academicians. For example, the study of Wetchasart (2004) on the process to become physicists found the interaction between students and friends resulting in the self improvement to become good students and have abilities in mathematics. The study of Wills et. al. (1999) showed the roles of friends to the study in science and technology by using learning techniques among groups of friends in computer teaching. The positive result also revealed that the students could gain new ideas and can be satisfied with the studied subjects. When considering this disagreement in the context of sample group students, it could be discussed that the 4th year students might develop themselves strongly for responding to the change in professional work especially for academic institutes. The interaction with friends is possibly in the form of behavioral reference both related and not related to the study such as recreations. Consequently, the interaction with friends was not as concentrated as the interaction related to the improvement of scientist personalities that could create thought, belief, or personalities of persons. However, it was found that the influence of friends directly effected on scientific inquiry behaviours. It is possible that the roles of friends may be in the forms of advice, suggestion, or consultation on the ways to seek for scientific knowledge from many sources, for example, published media, libraries, websites, or the support in encouragement or care during the study.

Scientist personality

It was found that scientist personality directly effected on scientific inquiry behavior. It could be discussed that the students had properties in their unique characteristics supporting and leading to the academic success in science, for example, being curious to gain knowledge in many things or situations, having freedom in thinking, having creativities, preferring to gain new knowledge. These qualifications promoted the behaviors and actions of students in scientific inquiry from many sources which were persons such as parents, teachers, gurus, and friends or academic places such as libraries, learning centers, including scientific learning sources which are published media, radio, television, and websites. The students were ready to listen to the opinion of other people and willing to change their ideas or practices when there was more reliable idea without prejudice. Niyomkha (1988: 152-156 citing Maccracken; et al. 1967: 5) explained the process of scientific inquiry and qualifications necessary for being possessed by scientists. For example, the process of hypothesis, the scientists must make it with carefulness using data gained from noticing, existing experience, and existing knowledge as well as creativity.

7. CONCLUSION

According to the study, it can be seen that university environment is very important for the development of scientist personality and effects on scientific inquiry behavior. Therefore, it should be focused on the roles of teachers who are important agents in knowledge transfer. The universities should pay attention to the development of teachers in the universities especially in the forms and teaching techniques supporting the development of scientist personalities to the students. Moreover, in arranging the teaching, teachers can use the process of student grouping for specifying other additional activities, for example, camping or academic forum to enhance the students in developing their interaction with their works. The students can do the activities

altogether for creating learning both in the studied contents and process of working in team. For the next research, it may be the comparison of change or form of difference in structure of relationship among groups of students in different fields such as chemical and physics. This research is the overall study. The comparison of difference may lead to the discoveries possibly beneficial for the development of students in each field.

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**“Work Behaviors based on Sufficiency Economy Philosophy”
Meaning, Enhancing and Consequences to Employee and Organization:
Perspectives of Employees in Factories of Automotive Parts
Manufacturing Industry in Thailand**

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ABSTRACT

The purposes of this research are to study the meaning of work behaviors based on sufficiency economy philosophy, the consequences of performing work behaviors based on sufficiency economy philosophy as well as analyzing the enhancing factors of work behaviors based on sufficiency economy philosophy in perspectives of employees in factories of automotive parts manufacturing industry in Thailand. This research had compiled information by providing open-ended questions to ask 379 employees, focus group discussion and in-depth interview with employees and administrators total 15 persons. The content analysis was used to analyze the data. The research results found out that ‘work behaviors based on sufficiency economy philosophy’ are the performance of an employee who can work efficiently, appreciating in available resources, having good human relations, satisfaction and happiness in the present and being able to manage his time properly. Meaningfully, that employee also gives the most priority to efficiency of working. For the possible effects of bringing sufficiency economy philosophy to adopt in working, generally most employees agreed that it was quite useful for themselves and organization; namely, better performance, efficient duty performing, good mental health, good human relations between employees and their co-worker as well as employees and organization, less resource cost, harmony, prosperity in both individual employees and organization. For the enhancing factors of work behaviors based on sufficiency economy philosophy, the employees advised that to profoundly provide education and understanding about the philosophy of sufficiency economy, having good model in work behaviors based on sufficiency economy philosophy, creating sufficiency in culture, organizational environment and individual characters are the actual enhancing factors which create the work behaviors base on sufficiency economy philosophy.

Keywords: Work Behaviors, Sufficiency Economy Philosophy, Automotive Parts
Manufacturing Industry

1. INTRODUCTION

If we look back to the overall images of Thailand society over the last 10 years until nowadays, Thai people have clearly expressed and recognized the importance of the royal thought of idea of His Majesty the King's sufficiency economy consistently. It can be seen from various projects which brought many principles of sufficiency economy philosophy to be applied to many fields

of duties, whether it was a duty of education, working, business and community development in both urban and rural areas across the country. Since Thai people have realized the benefits and value of his royal principles application, the livings of Thai people have hereby run smoothly and been pleased amid changes and chaos in the current society. This can be described as the sustainable improving for Thai people's life quality, quality of institute, quality of society as well as quality of nation.

The philosophy of sufficiency economy does not only aim at teaching to economize, living life simply and contented. The sufficiency consists of 3 principles. The first principle is Moderation; namely, thoughts and actions that are not too much or too less and also not exploit both themselves and others. The second principle is Reasonableness; namely, considering information carefully with multiple perspectives based on reality in both short term period and long term period. The third principle is Self-immunity; namely, ability to adapt themselves in changes and being ready for new situations, accepting for both occurring positive and negative impacts and having critical consideration to accept or decline any situation that may take place in the future. For Moderation, Reasonableness and Self-immunity totally have to use Knowledge, that is, wisdom, caution and carefulness in using academics for planning and implementation in all processes. Meanwhile, people have to strengthen their mind for Virtue, that is, morality, diligence, patience and sharing (Office of the Royal Development Projects Board, 2007, p. 7). The philosophy of sufficiency economy can be summarized as shown in Fig.1.

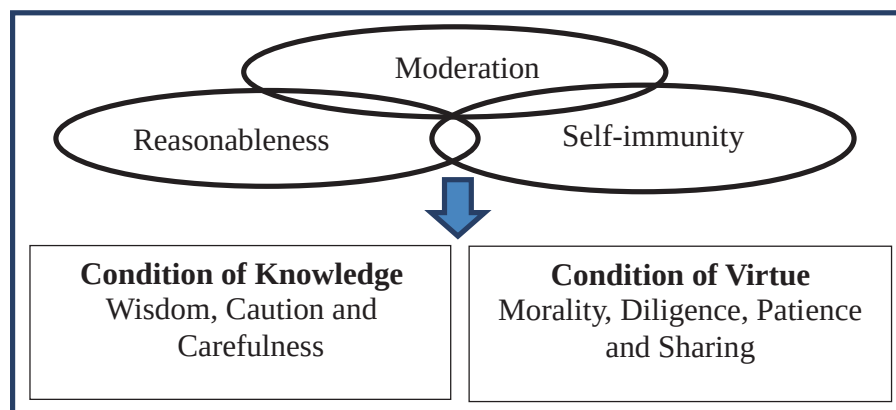


Fig. 1: Summary of Sufficiency Economy Philosophy
Source: Office of the Royal Development Projects Board, 2007,p. 37

In the application of sufficiency economy philosophy, we have found out several good points. It can make peace of minds, succeeding in their responsibilities, moral growth, ability to control work life and personal life stably and appropriately which can also make more effectiveness of working. This is because a person whose sufficient behaviors will have perspectives and value which conform to morality, reasonable performing, future orientation, self-confidence and self-action controlling to meet his targets including motivation to overcome barriers against work (Bhanthumnavin and Bhanthumnavin, 2007). There are several researches that studied regarding the applications of sufficiency economy philosophy to solve problems for institutes as if the researches of Panthasen, Premcheun and Keatdetpanya (2003) that studied about the application of the royal thoughts of idea regards to sufficiency economy to medium and small industry in six

industry groups; that is, food and drink, processed wood, paper and printing, rubber and plastic products, metal and non-metals, machinery and transport equipment. The results showed that the industries which could survive during the economic crisis mostly had applied the principles of sufficiency economy in many fields of their operations; such as, using cheaper technology, economical and efficient resources for essential academic, having morality in business performing and not taking advantage of consumers, labors and suppliers, having size of productions suit with their management capacity and etc. Similarly, the research of Maphasop (2008) also documentarily studied regarding waste management based on sufficiency economy philosophy which focuses on the modifying factors and approaches to solving problem by dealing with the causes of problem. The results showed that it could reduce waste and impacts caused by waste effectively.

From the value and benefits from application of sufficiency economy philosophy as mentioned above including with intention of researchers to apply the royal thoughts of idea for ideal benefit to Thai society. Therefore, researchers consequently interested in application of sufficiency economy philosophy in automotive parts manufacturer in Thailand. The reason is the kind of industries was under recovery after economic deceleration in the last 10 years which might require many powerful capabilities to thrive this kind of industry prosperously same like the early days.

For this study, the researcher would like to know the perspectives of employees in automotive parts manufacturer in Thailand, their understanding in meaning of work behavior based on sufficiency economy philosophy, how the consequences of principle application is and which model for development and encouraging work behaviors of employees based on sufficiency economy philosophy. However, the researcher expected that the results of this study will be useful for administrators, human resources managements or related persons in automotive parts industry to adopt as reference information for policy planning in human resource and operational planning concretely and explicitly onwards.

2. OBJECTIVES OF RESEARCH

The objective of this research was to study the work behaviors based on sufficiency economy philosophy, study consequences and enhancing factors of work behavior based on sufficiency economy philosophy in perspectives of employees in automotive parts manufacturing industry in Thailand.

3. RESEARCH METHODS

The researcher had collected data from two sources. The first source compiled information from open-ended questions by inquiring 379 employees from 58 automotive manufacturing industries in Thailand. The 379 employees had been randomly selected through multi-stage sampling by beginning with cluster sampling for provinces and industrial estates and stratified sampling for industrial factories. Then the research randomly chose employees from factories to reach specified number. The second sources used in-depth interview and focus group with 2 important groups of interviewers, that is, group of employees and group of administrators totally 15 peoples from multi-stage sampling. Beginning with cluster sampling for provinces and industrial

estates as well as following with stratified sampling for factories. After that, the research used purposive sampling to select interviewers by interviewing framework which has comprehensive questions for query settings, analyzing data by content analysis and monitor the quality of data by Data Triangulation which collected data from multiple sources (employees and administrators) as well as verifying accuracy of information with interviewers again (member check).

4. RESULTS, DISCUSSION AND SUGGESTION

4.1 The Meanings of Working Behaviors based on Sufficiency Economy Philosophy

The work behaviors based on sufficiency economy philosophy in understanding of employees are expression of work behaviors following the most important purpose of efficient performance. The minor purposes are recognition of available resources, having good human relations, satisfaction and happiness in the present and appropriate time management, respectively. **Efficiency of working** is employees' performance quality, success as plans, having responsibility, full understanding of work, ability in planning, having systemic work processes, being cautious, reasonable, principled, considerate, diligent, determined, patience, struggled against obstacles, conscious, concentrated on working, following regulations, equitable, having loyal to work and organization, creative, acquiring knowledge, developing work and self-improvement, having skills of making decisions and problem solving, not being extremely stressful or lack focusing in work. **Appreciation in available resources** is saving, not being extravagant, having savings and enough income for expenses, having no debt and recycling old thing to maximize its benefits. **Having a good human relations** are hospitality, generosity, being helpful, not taking advantage of themselves or others, taking care of public benefit, acting appropriately, able to adapt themselves to environment and co-workers, have positive attitude towards co-workers and organization, accept others' opinions without conflict and battle, keeping harmony, not creating problems for the organization and getting together with others. **Satisfaction and happiness in the present** is simple living, not being too ambitious, being satisfied and delighted in what they are being or possessing. **Proper time management** is ability to allocate time for work and family appropriately.

As the results of data analysis, the reasons why the employees have their perspectives on work behaviors based on sufficient economy as the priority of performance are probably the influence of organizational cultures from other countries; such as, the work cultures of Japanese and American who seriously focus on their work as priority. The employees had been wholly transmitted the value of work performance within their countries. Concordantly the research of the Kaongeun (2009) which found that organizational cultures and environment are relate to living by following sufficiency economy philosophy and belongs to a teacher in elementary school of Lumpini groups, department of education, Bangkok. Possibly another reason, performance evaluation in private business organization is quite strict. It is possible that employees might perform and act for their good point evaluation.

4.2 Consequences of Performing Work Behaviors based on Sufficiency Economy Philosophy

The employees in automotive parts industries in Thailand described that if they or any person

applied the principles of sufficiency economy philosophy in work, it could produce a great impact in many aspects, especially in terms of **achievement and work performance**. Their work could be achieved as settled target, meeting or exceeding standard quality, having conscious intention, being carefully concentrated, not underestimating hard works, being diligent, having full responsibility on setting target and planning, initiating self-development and being able to adapt themselves in changes. Referring to the according statements of two employees, the first one is the 40 years-old man, married, graduated in master degree, 9 years working in his current company and has his hometown in SuratThaini, said that "If we can work by following the principles of sufficiency, we will able to perform working as targets with high quality, having less deteriorated machines, delivering works to customers in time, get ing higher customer satisfaction, having more new customers and new product lines". The second one is the 31 years-old man, unmarried, graduated in master degree, almost 8 years working and has his hometown in Chiangrai, similarly said that "The principles application of sufficiency belonged to His Majesty the King for working will increase ability of good management, systematic organizing due to good work management and proper time management can definitely improve better performance". In another supportive reasons, they said that the principles have a **psychological effect** to employees by making them happy and satisfied, not being stressful and pressured in work. The other consequences are effects of **relationship between employees and their co-worker as well as employees and organization**. They would tend to make concessions and compromise on situations, not hurting others physically, verbally and mentally, not being selfish or exploited, being generous, having harmony, being reliable in team work for team and having loyalty to organization. Furthermore, it can also **decrease costs** due to every employees will to economize, using resources efficiently and maximizing their benefits, reducing production costs, increasing profits, having **harmony, performing** followed regulations and adhering to virtue and morality which can bring **prosperity into themselves and organization**.

The summarized statements above represent the perspectives of employees which believe that the applications of sufficiency economy philosophy can bring many value consequences. But few employees believe that the applications might cause inactivity in work, working day by day, not being struggle and enthusiastic and motivated to develop themselves. Besides, this might lead to increasing stress at work due to the need of consideration and finding reasons in performing even more.

As mentioned that the few employees whose perspectives regarding negative effects from the applications of sufficiency economy philosophy, it is possible that the principles of sufficiency economy philosophy indeed covered a variety of issues. The few employees mightpossibly not fully understand all the issues. Therefore, if the few employees have opportunity to acquire more knowledge and understanding of the principles properly, their perspectives might be consistent with the most employees.

4.3 Enhancing factors which Encourage Employees to Work following the Philosophy of Sufficiency Economy

The employees had described their perspectives regarding enhancing factors that, before employees in factories perform the applications of sufficiency economy philosophy, they should be well educated in various methods; such as, **education** through giving a lecture, teaching, regular introduction, promoting organizational activities and training seminars by invited

lecturers to give knowledge, assigning employees to think and to suggest projects related to the philosophy of sufficiency economy, including **using public relations medias** by document distribution, setting public relations boards, public sound, videos, campaigns, etc. In addition, the modifying factors that influence employees to perform according to the philosophy of sufficiency economy might be **a good model**, that is, the good model of administrators', supervisors' and co-workers' work behaviors based on sufficiency economy philosophy. This model can influence employees to perform accordingly. Probably, **setting organizational policy** in performing plans, organizational culture and organizational strategies by assigning specified persons to regularly operate and follow. Moreover, **individual characters** which fostered by family and individual awareness are another variables that lead to development of work behaviors based on sufficiency economy philosophy.

From these research results, the researcher has summarized in diagram as Fig. 2.

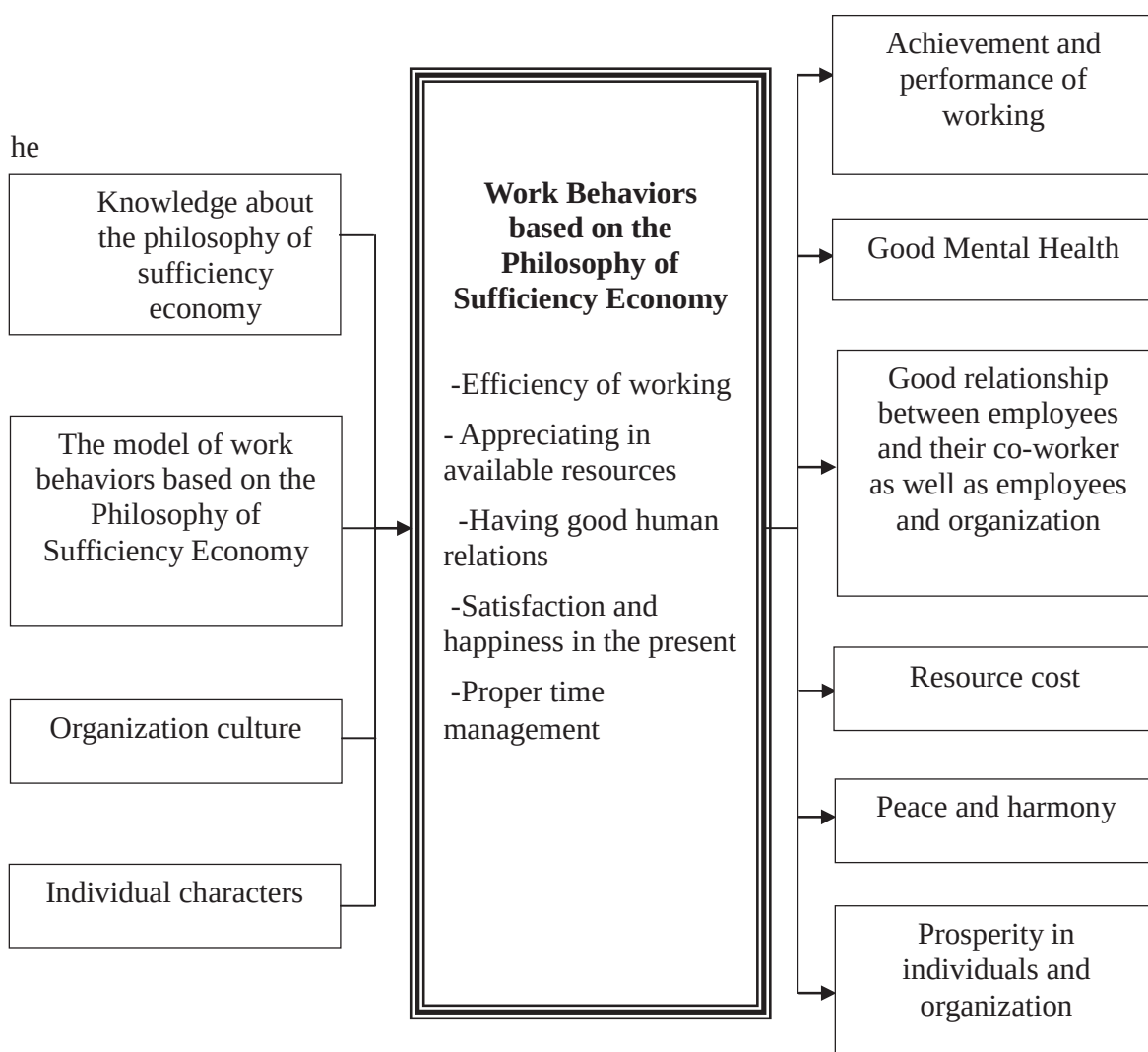


Fig. 2: Meaning, Enhancing and Consequences of Work Behavior Based on Sufficiency Economy Philosophy

5. CONCLUSION

In general, most employees concordantly agreed that if the philosophy of sufficiency economy has been applied to their work; it will bring benefits to themselves, their organization and society. Therefore, employees should be encouraged to promote the adoption of work behaviors based on sufficiency economy philosophy. However, employees should have been given more knowledge about sufficiency economic philosophy for clear and profound understanding which will create the most benefit from applications.

6. ACKNOWLEDGEMENT

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Trypanophobia (Needle Phobia) in Young Adults: A Cross-Sectional Study in Karachi

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ABSTRACT

Objective: To identify the effect of education of the patients on trypanophobia (needle phobia) and to analyze the relationship between trypanophobia and the practices of doctors.

Study Design: Cross-sectional study

Place and Duration of the Study: Data was collected from two private and two public hospitals in difference location of Karachi from September 2012 to December 2012.

Methodology: The sample included 156 patients and 79 doctors. Two questionnaires were administered which included Injection Phobia Scale-Anxiety¹² including questions to assess the causes of needle phobia and health seeking behavior of patients. Another questionnaire was designed for doctors to observe how they deal with situations when they are presented with patients having needle phobia.

Results: Statistical analysis through linear regression showed that education of patients had no impact on the IPS score of patients ($R^2 = 0.006$, $F(1,154) = 0.000$, $p > 0.05$). The results also suggested through Pearson correlation that there was negligible relationship between trypanophobia and practices of the doctors ($r = -0.110$).

Conclusion: In conclusion, the results of the study suggest that there is no impact of education on trypanophobia. Moreover, it was found that there is no relationship between trypanophobia and the practices of the doctors. Adequate training is should be provided to healthcare professionals related to patient counseling regarding medical procedures. Policies should be put in place for procedures involving needle administration and hospitals should play their part in implementing those policies.

Key Words: *Anxiety, Trypanophobia, Doctors, Education.*

INTRODUCTION

Phobia in human psychiatric terms is an irrational fear whose proportion does not match the actual level of threat¹. It can be considered as an emotional state in which a person tries to avoid the source whose exposure makes the person unrest and anxious. Such an emotional state interferes in the daily routine activities of the individual as well. An individual may have a number of phobias at one time. Among them, are specific phobias which include fear from specific situations like being at height (acrophobia), flying, seeing blood, receiving injections, darkness (achluophobia), crossing the street (agyiophobia), etc. Phobias comprise four major categories, which include blood-injury-injection type, situational type, natural environment type and animal type².

Among all of these, injection phobia is one which runs in families and has an impact on health seeking behavior of individuals because of the physiological and psychological symptoms felt as a result of phobia. Many people have fear of injection at some extent but unfortunately if it becomes persistent then it creates problem and become a phobia. If an exposure to needles provokes a person to an immediate anxiety response, it is an indicative of Trypanophobia³.

Trypanophobia is common in other countries as well. For instance, in general Sweden population, prevalence of injection phobia is about 4.5%⁴. Not much literature exists regarding prevalence of needle phobia with special reference to the population of Pakistan, but it is generally observed that people are reluctant towards medical treatments which involve needle administration. Studies showed that the fear of injection usually starts at the age of 5.5 and remains quite common in adulthood⁵. This depicts that individuals when are in their childhood stage get exposure of the stimuli which provoke sensation of fear. Usually development of fear of injection is followed by an unpleasant experience. The same was confirmed in a research study on classical conditioning theory applied on fear acquisition for injections. revealed that 63% of the subjects aged between 7 and 18 years had fear of injections because they had

previously experienced painful and unpleasant injections.⁶ Prevalence of needle phobia is 23% according to Nir et al in travelers attending a health clinic.¹⁷

Word-of-mouth is a prominent contributor in developing one's fear. An individual may not have experience a situation himself but still feels the danger to try for the first time mainly because people around him have narrated painful stories of their own experiences. Many studies support the same notion of negative information contribution to fear.⁷ Such negative information creates a negative perception in the mind of the individual who is still to experience that. This in turn develops fear for situations and objects. Needle phobia is more common in females than males and in people less than 40 years of age.¹⁶ The onset of needle phobia can be attributed to conditioning experiences, vicarious experiences and information/ instruction.¹⁸

This fear may consequently leave an impact on the individual's physiology and psychology and on the behavior of the individual according to UK's National Phobias Society's report 2006⁸. Physically, this phobia affects body when sufferers experience temporary palpitations and increased heart blood pressure. Shortness of breath, dry mouth, nausea, tremor, fainting and feeling panic are other bodily symptoms. Psychologically, the individual may feel distressed. His anxiety levels may go high. There may be a feeling of going to faint while seeing needles and behaviorally, the sufferer may avoid looking at the blood or needle, or he may totally avoid the situation and escape. The sufferer may try to avoid even places or people which are associated with needle administration like hospitals, doctors, dentists and nurses, because of which the doctors may amend the medical treatment which can also change the outcome of the treatment. Educating patients and using relaxation techniques can help to minimize trypanophobia.^{14, 15}

The objective of this study was to identify if there is an impact of trypanophobia on the practices of doctors. Additionally, our study aims to analyze the effect of education on trypanophobia. Following hypotheses were formulated:

1. There is a relationship between education of the level patient and trypanophobia.
2. Trypanophobia of patients has an impact on the practices of doctors

MATERIAL & METHODS

This cross-sectional study was conducted from September 2012 to December 2012. Two private and two public hospitals located in Karachi were selected for the study. The sample comprised of patients and doctors from the selected clinics and hospitals. Through precision method, 7% of the monthly population of patients visiting the clinics and hospitals were chosen through simple random sampling (n=156). All doctors of the selected clinics and emergency wards of private and public selected hospitals were chosen (n=79).

Only those patients who scored 20 or more on IPS-Anxiety and were of equal to or more than 18 years of age were included in the study. Patients from both gender, doing different kinds of jobs, including all private jobs, domestic work, government jobs and also those, who were running their own businesses with either of the marital status and education level formed the sample of the study. Doctors, who were MBBS with 3 years and above experience of practicing medicine were included in the study.

As part of ethical consideration, informed consent was sought from all participants of the study. The participants had the right to leave the study anytime or not to answer any of the study questions. Data was kept anonymous by assigning identification numbers to the participants. The results of the study would be shared with the participants.

The demographic form was used which included variables of age, gender, education status, marital status, occupation and monthly income. The Injection Phobia Scale-Anxiety¹² (IPS-Anxiety; Ost, Hellstrom, & Kaver, 1992) is an 18-item, 5-point Likert scale in which individuals rate their degree of fear and anxiety if they were to experience a variety of injection and/or venipuncture procedures. The scale ranges from 0 = "No anxiety" to 4 = "Maximum anxiety." In this sample, internal consistency was found to be 0.765

To measure doctors' practices, a questionnaire was developed on the basis of focused group discussions done in three different settings with doctors. It consisted of three questions. The variables included course

of action in terms of 'counseling', 'change of treatment plan' or 'not listening to patients and continuing with treatment'. For each of the variables a separate question asked 'Are you professionally trained in counseling the patient who has fear of injection', 'If you change the treatment and choose alternative, in your opinion which of the following impact does the alternative treatment have', 'What is the reason for continuing with the treatment knowing that the patient has phobia of needles'

Permission was taken from the Hospital Administration. In the study settings, patients sitting in waiting areas of OPD and emergency wards were approached and the study objective was explained to them. After taking consent, each respondent was interviewed according to the questionnaire and their response noted down. A total of 300 patients were approached and 156 from them who scored 20 and above from the IPS-Anxiety scale were included in the study. Doctors working from clinical and emergency wards of hospitals were chosen from their roster schedules and approached. After explaining the objectives of the study, interviews were taken and response noted down in the questionnaires.

SPSS 17 version for Windows was used to analyze data. Regression analysis was carried out to analyze the effect of education of patients on trypanophobia. Pearson's correlation was used to identify the relationship between trypanophobia and the practices of doctors

RESULTS

The sample of the study had 42.9% of the patients belonging to age between 20 and 29 years followed by 28.8% of the patients belonging to age between 30 to 39 years. Only 1.3% of the patient sample was from the age group of 60 years and above. The patient sample had 42.3% and 57% males and females respectively. Half of the sample (50.6%) was married followed by 42.9% patients as single. 3.2% and 2.6% of the sample had marital status of divorced and widow respectively. For education, 40.4% of the sample had acquired education up till graduation followed by 25% of the sample, who was post-graduates. Occupational Status of 63.5% of the sample was “non-working” whereas 36.5% were working; out of which 48.1% were doing private jobs followed by 9.6% who were involved in running their own work 42.3% of the sample was earning monthly income of Rs. 50,000 to Rs. 99,000 with 14.1% earning a monthly income of Rs. 40,000 to Rs. 49,000. Only 6.4% of the sample was earning a monthly income of one lac or above.

Pearson’s Correlation was applied to identify the relationship between trypanophobia and the practices of doctors. Statistical analysis shows that there is no relationship between trypanophioba and practices of doctors ($r = -.110$). This shows that doctors’ practices to treat patients are not dependant on patients’ fear of needles.(Table 1)

Doctors practices with needle phobia were identified and it was found that 34.2 % of the doctors counsel the patients if the patient is reluctant to allow doctor to administer needle. 29.1% change the treatment for ease of patient while 36.7% do not listen to patient and administer needle as per treatment (Figure 1).

Linear Regression Analysis between Education of Patients and IPS Score revealed that there is no impact of education on IPS Score of patients ($R^2 = 0.006$, $F(1,154) = 0.000$, $p > 0.05$) (Table 3 and 4). IPS Score cannot be predicted with the help of education. (Table 2, 3, and 4)

DISCUSSION

This study was conducted to identify the relationship between education of patients and their fear towards needles. Another aim of this study was to identify if the practices of doctors are affected due to fear of needles in patients. It was hypothesized that there is a relationship between education level of the patient and trypanophobia. Another hypothesis of the study was that trypanophobia of patients has an impact on the practices of doctors.

Our study states that regardless of education of patients, they had fear of needles which shows that it is completely taken in its psychological aspects. ($R^2 = 0.006$, $F(1, 154) = 0.000$, $p > 0.05$). This finding is also supported by a research study conducted on 1019 residents of metropolitan Seattle in which 24% of the study participants had completed high school 41% had received post-graduation education and despite this, had different fears⁹. Hence, education of patients cannot be termed as a factor to lessen fear towards needles. Therefore, our hypothesis that there is a relationship between education of patients and trypanophobia is rejected. This is probably due to the fact that fear exists as a natural psychological phenomenon related to past experience or reference regardless of education.

We hypothesized that practices of doctors are affected by trypanophobia in patients. Statistical analysis revealed no such relationship and the findings demonstrate that both trypanophobia and practices of doctors are independent of each other ($r = -.110$). Doctors do not relate their practices to fear of patients towards needles. As part of their duty, doctors do counsel the patients as revealed in our study but majority of the doctors have also reported no formal training in counseling of patients who have needle phobia. Counseling is a part of medical education. In Pakistan's context, doctors are trained on how to counsel patients to ensure compliance in different diseases. But particularly, the area of trypanophobia has not been addressed and no formal training is imparted on this topic. Research study conducted by Mahler, et al. in 2012^[10] has proven the efficacy of training of doctors on counseling of patients. The study concludes that patients' satisfaction increases with proper counseling of patients given by doctors which

indicates that proper training of doctors on counseling patients when they show fear of needles can help to relieve patients' fear towards needle.

Our study indicates that 29.1% of the doctors perceiving that alternative treatment to injection is not as effective as injection, change the treatment. A joint report by the Centers for Disease Control and Prevention and the World Health Organization¹¹ confirms that there is misconception among prescribers that injectable drugs are stronger than oral drugs which is contrary to the perception of our healthcare practitioners. Data collected from doctors also revealed that due to workload, doctors continue with the treatment regardless of the fear of patients associated with needles. People suffering from blood and injection phobia also avoid healthcare themselves owing to this fear and hence, may move towards morbidity and mortality.^{19, 20}

Limitations of the study included its sample size being small. Moreover, the study is restricted to one city, i.e. Karachi because of which results cannot be generalized to population. The scale which was used as a questionnaire was self-reported and there was a chance of responses being affected by individual's frame of reference or state of mind at that point in time. Questionnaire for doctors was based on three focused group discussions merely. Needles are administered by paramedical and nursing staff as well but no information has been gathered for this study from nursing and paramedical staff and hence, is limited to doctors only.

Considering the limitations of the study, further research studies can be expected in which more clinics can be added to form a large sample size. The study can be extended to other cities of Pakistan as well to analyze the needle phobia in the entire population. Standardized questionnaires developed to analyze the practices of doctors will tend to provide more reliable information. Nursing and Paramedical staff, which is in close proximity with patients, can be included to form sample in the study along with doctors.

Policy makers should formulate policies of medical and nursing practices particularly with reference to needle administration. Hospitals should implement the stated policies and ensure that the doctors and staff do follow them. Staff which administers needle should be trained in medical procedures. Staff including doctors should be trained to be friendly with patients so as to help them not feel the pain. Hospitals should form a separate area for needle administration. The room should have ambience to make injection a good experience. The room should be kept clean and tidy with proper disposal system of needles and other instruments if used there. This will create a psychological impact on patients. Patients are now treated as customers in healthcare industry. Hence, patient feedback forms should be used by the hospital management to see if the patient is satisfied with how he has been treated. Moreover, awareness of intravenous procedures, vaccinations, blood tests should be encouraged in the public to inculcate the importance of medical procedures so that patients will not refrain from injections.

CONCLUSION

In conclusion, the results of the study suggest that there is no relationship between trypanophobia and the practices of the doctor. Moreover, there is no impact of education on trypanophobia. Proper counseling of patients related to medical procedures is mandatory by trained health care practitioners. Improved management practices on part of Hospital Administrators may play an important role in shedding the workload of practitioners which will render time to doctors for counseling of patients after which the enhanced patient satisfaction from the treatment and decreased fear from needles may be expected.

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Tables and Figures

Table 1

Pearson's Correlation r between Injection Phobia Scale and Practices of Doctors

		Practices of Doctors
Injection Phobia Scale	Pearson Correlation	-.110
	Sig. (2-tailed)	0.339
	N	79

Figure 1

Course of action of doctors when encountered with needle phobics

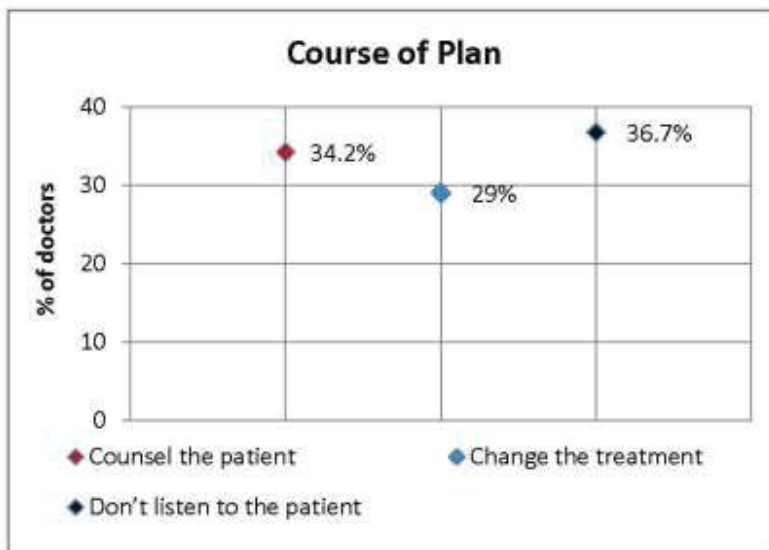


Table 2**Analysis of Variance for Linear Regression with Education as predictor of IPS among patients**

	Model	SS	df	MS	F	Sig.
Education	Regression	0.000	1	0.000	0.000	0.999
	Residual	7928.840	154	51.486		
	Total	7928.840	155			

a. Predictors: (Constant), Education

b. Dependent Variable: IPS Score

Table 3**Coefficients for Linear Regression with Pay Satisfaction as predictor of Organizational Commitment among private sector business universities faculties**

Model	Un-standardized Coefficient		Standardized Coefficient	t	Sig.
Education	<u>B</u>	<u>SE</u>	<u>B</u>		0.999
Constant	0.000	.446	0.000	15.818	

a. Dependent Variable: IPS

Table 4**Summary of Linear Regression with Pay Satisfaction as predictor of Organizational Commitment (Affective, Continuance, Normative) among private sector business universities faculties**

Dependent Variables	R	R ²	Adj R ²
Education	0.000	-0.006	7.175

df= 1

a. Predictors: (Constant), Education

b. Dependent Variable: IPS

Anger, Emotional Distress and Suicidal Ideation in University Students with Mild Psychological Problems

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Abstract

The present research investigated relationship between different types of anger (operationalized as instrumental anger, reactive anger, and anger control), emotional distress and suicidal ideation in university students, screened with complaints of mild psychological problems. It was hypothesized that there is likely to be relationship between anger, emotional distress and suicidal ideation. Further this was hypothesized that anger and emotional distress are predictors of suicidal ideation. The sample for the current research consisted of N=40 students (boys= 16, girls= 24) with age range between 18 to 22 years. The sample was selected from University of the Punjab Lahore, Pakistan and Lahore College for Women University Lahore, Pakistan by using purposive sampling strategy. The Anger Rating Scale (Burney, 2001), Emotional Distress Inventory (Moscato, et al., 1999) and Positive and Negative Suicide Ideation Inventory (PANSI) of (Osman, 1998) were administered to assess anger, emotional distress and suicidal ideation respectively with due permission from the respective authors. The findings revealed significant positive relationship between anger, emotional distress and suicidal ideation (PANSI-negative) and significant negative correlation in anger and protective thoughts and ideations (PANSI-positive). Anger and emotional distress emerged as strong predictors of suicidal ideation. The study findings carry strong implication for the researchers, clinicians and educationists.

Keywords: Anger, emotional distress, suicidal ideation, students

1. Introduction

The present research investigated relationship between different types of anger (operationalized as instrumental anger, reactive anger, and anger control), emotional distress and suicidal ideation and examined gender differences in anger, emotional distress and suicidal ideation in university students, screened with complaints of mild psychological problems.

Anger is primary, innate and mature emotion experienced by virtually all human beings and as something that has practical value for continued existence. Anger can activate psychological resources for remedial action but uncontrolled anger can however negatively affect personal or social wellbeing. While emotional distress states fear, anger, hopelessness, anxiety and has been one of the most challenging and conceptually important issue in psychopathology research. Anger and emotional distress states have been considered critical in the development of suicidal ideation behaviour in students. Previous studies in both clinical and non-clinical university based

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populations have found that both anger and emotional distress act as predictors of future suicide ideation and elevate the risk for suicidal behaviour (Goddard, Kashani & Reid, 1989; Videbeck, 2006; Zhang & Roberts, 2012).

Anger is a negative reaction to a situation or event (Burney, 2001). Instrumental anger is a negative emotion that triggers a delayed response resulting in a preferred and intended goal of revenge. Reactive anger is an immediate angry response to a perceived negative threatening or fear provoking event. Anger control is a proactive cognitive behavioural way used to act in response to reactive and instrumental provocation (Burney, 2001). Anger is the major cause of many psychological problems (Farlex, 2010; Moore & Constantine, 2005). The abnormal level of anger when individuals lose their senses and act in an irrational way can have an adverse effect on health that can lead to distress (Piccinelli, & Simon, 1997). Distress is the experience by which we feel that all is not well with our world. It includes all highly obnoxious mental reactions, such as fright, nervousness, grief, anxiety, worry, mortification, shock, humiliation and dishonour, as well as physical pain (Smith, 1952). Emotional distress is one of the predictors of suicidal ideation (Liu, 2004). Suicidal ideation is a general medical term for thoughts about suicide which may be as comprehensive as a formulated plan, without the suicidal act itself. Suicidal ideations are thoughts about how to kill oneself, which can vary from a detailed plan to a fleeting consideration and does not include the final act of killing oneself (Gliatto, Michael & Anil, 1999). According to Kirby, Bruce, Radic, Coakley and Lawlor (1997); Gliatto, Michael and Anil (1999); Peck (1989) suicidal ideation has been identified as both a common precursor and a major risk factor for suicide attempt and completed suicide. Literature revealed that anger and emotional distress are strongly correlated to suicidal ideation which can lead to suicide attempt in students. A research was conducted on anger as a predictor of suicidal ideation in middle school students in Korea. This study assessed the gender differences in the level of suicidal ideation and anger predictors for suicidal ideation and the varying association between suicidal ideation and anger. Girls reported significantly higher scores in both anger and suicidal ideation. While anger was a significant predictor for suicidal ideation only in boys, both school life satisfaction and anger were significant predictors of suicidal ideation in girls (Lee et al., 2009).

Similar evidence on relationship between anger, emotional distress and suicidal ideation found in other studies (Surís & Parera, 1996; Gouin, Malarkey, & Glaser, 2008; Mahon & Yarcheski, 2003; Muris, Meesters, Morren & Moorman, 2004; Goldstein, Birmaher, Axelson, & Gill, 2009; Park & Shin, 2010; Rasheed et al., 2005). By summarizing anger is feeling of great annoyance or antagonism as the result of some real or supposed grievance or rage or which can have adverse effect these adverse. Emotional distress is negative emotional reaction which involves anxiety, anger, depression, sadness and feelings of despair.

1.1. Rationale of the Research

Students play a vital role in the development of a country and are considered as the backbone of country. Anger and emotional distress are factors leading students towards suicidal ideation, a useful marker of suicide attempt (Mcauliffe, 2002). If students experience anger and emotional distress resulting in suicidal ideation; it would be a huge loss for country. Awareness of these issues has led to an increased emphasis on the early recognition of those at maximum risk of suicide. So it is important to understand relationship of anger, emotional distress and suicidal ideation to determine remedial measure for suicidal ideation and behavioural inadequacies like anger and emotional distress in comparative social scenarios along with highlighting successful behavioural manifestation to cope everyday challenges.

1.2. Hypotheses

- Anger (instrumental anger, reactive anger, anger control) is a predictor of suicidal ideation (PANSI-negative, PANSI-positive) in university students with mild psychological problems.
- Emotional distress is a predictor of suicidal ideation in university students with mild psychological problems.
- There are likely to be gender differences in anger (instrumental anger, reactive anger, and anger control), emotional distress, and suicidal ideation in university students with mild psychological problems.

2. METHOD

2.1. Research Design

Correlational research design was used.

2.2. Sample

The sample consisted of N=40 university students (boys= 16, girls= 24) with mild psychological problems was selected purposively. Age range of participants was between 18 to 22 years. Mean age of boys and girls was 21.9 years and 21.4 years respectively. Participants were taken from University of the Punjab and Lahore College for Women, University.

2.3. Assessment measures

2.3.1. Demographic information questionnaire

The demographic questionnaire developed by the researcher consisted of information regarding participant's gender, age, birth order, education, number of friends, and behaviour of friends, family system, family income and family history of psychological problems.

2.3.2. Perceived emotional distress inventory (PEDI)

Emotional distress was measured using the perceived emotional distress inventory. It has 15 items. Responding to each PEDI item, subjects report to what extent they had experienced each emotional distress related symptoms during the past two weeks, including today by rating themselves on a 3-point scale, (0) not at all, (1) sometimes (2) often and (3) very much so. The scores for the inventory range from 0 to 45 points. In present research the alpha reliability coefficient for the instrument was .89 (Moscoso, et al., 1999).

2.3.3. Positive and negative suicide ideation inventory (PANSI)

Positive and negative suicide ideation inventory (PANSI) was used to assess suicidal ideation. Inventory consists of 14 items. Item number 1, 3, 4, 5, 7, 9, 10, 11 are PANSI - Negative (suicide ideation) items and Item number 2, 6, 8, 12, 13, 14 are PANSI-positive (protective thoughts or ideations) items. Each item of inventory is rated on a 5-point Likert type scale format ranging from 1 to 5 None of the time and most of the time respectively. The reliability estimates of the 2 subscales, in present research the PANSI-Negative $\alpha = .94$ and the PANSI-Positive $\alpha = .78$ (Osman, 1998).

2.4. Procedure

After getting formal permission from the concerned university authorities, consent was sought

from individual participants for data collection. They were briefed about the research objectives and importance of their role in the research project. Each participant completed questionnaires in the presence of researcher which assessed their demographic information, anger, emotional distress and suicidal ideation. Anonymity of the participants and confidentiality of the data were ensured. Data were analyzed and findings were discussed quantitatively and qualitatively.

3. RESULTS

Multiple regression analysis was used to find out the predictors of suicidal ideation in university students with mild psychological problems.

Table 1 Multiple Regression Analysis Predicting Suicide Ideation from Anger, and Emotional Distress

Predictors	R	R ²	β	t	p
Anger	.64	.41	.46	3.89	.00
RA	.61	.55	.42	3.49	.001
PEDI	.62	.38	.62	4.88	.00

Results showed that anger, reactive anger and emotional distress emerged as significant predictors of suicide ideation (PANSI-negative). Hypothesis is supported by the research findings. It was also hypothesized that there are gender differences in anger (instrumental anger, reactive anger, and anger control), emotional distress and suicidal ideation (PANSI-negative, PANSI-positive) in university students with mild psychological problems. Independent-samples t-test was conducted to find out the gender differences in anger, emotional distress suicidal ideation (PANSI-negative, PANSI-positive).

Table 2 Gender differences in Anger, Emotional Distress Suicidal Ideation (N=40).

Variables	Boys n=16)		Girls (n=24)		<i>t</i>	<i>p</i>	95% CI	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Anger	94.3	16.1	86.0	15.6	1.62	.11	[-2.06, 18.6]	0.51
IA	41.8	15.7	35.1	14.0	1.41	.16	[-2.88, 16.38]	0.45
RA	19.1	5.94	19.3	4.94	-.10	.91	[-3.69, 3.31]	-0.03
AC	31.6	7.29	33.4	7.40	-.72	.47	[-6.53, 3.08]	-0.23
Emotional distress	20.4	10.6	23.6	7.89	-1.08	.28	[-9.12, 2.74]	-.034
Suicidal ideation								
PANSI-negative	20.6	10.8	16.3	9.80	1.35	.18	[-.27, 1.35]	0.43
PANSI-positive	19.7	5.17	20.1	4.83	-.23	.81	[-.60, .47]	-0.07

Note. PANSI- positive and negative suicide ideation; PANSI-negative (suicidal ideation); PANSI-positive (protective thoughts or ideation) IA- Instrumental anger; RA- Reactive anger; AC- Anger control.

Results revealed no significant gender differences in anger (instrumental anger, reactive anger, and anger control), emotional distress and suicidal ideation (PANSI-negative, PANSI-positive) in university students with mild psychological problems. Hypothesis is not supported by the research findings.

3. DISCUSSION

Results indicated that anger (instrumental anger, reactive anger, and anger control) have significant positive correlation with suicidal ideation (PANSI-negative). Positive correlation means as the anger (instrumental anger, reactive anger, anger control) increases suicidal ideation (PANSI-negative) also increases. There is significant negative correlation between anger (instrumental anger, reactive anger) and protective thought or ideation (PANSI-positive). Negative correlation showed as the anger (instrumental anger, reactive anger) decreases protective thought or ideation (PANSI-positive) increases. Results also showed that anger and reactive anger are significant predictors of suicidal ideation (PANSI-negative). These findings are consistent with some of existing researches (Park and Ryu, 2009; Zhang and Roberts, 2012)

Findings revealed significant positive correlation between emotional distress and suicidal ideation (PANSI-negative). Positive correlation showed as the emotional distress increases suicidal ideation (PANSI-negative) also increases. There is significant negative correlation between emotional distress and protective thought or ideation (PANSI-positive). Negative correlation showed as the emotional distress increases protective thought or ideation (PANSI-positive) decreases. Results also showed that emotional distress is significant predictor of suicidal ideation (PANSI-negative). These findings are consistent with Liu (2004) and Bryan and Rudd (2012) research.

Findings suggested that there are no gender differences in anger in university students with mild psychological problems. It means boys and girls experience anger at the same level. The results of Howells and Milovchevich (2000) & Hastings (2011) support the findings of present research.

4.1 Limitations & Suggestions

○ The permission from concerned authorities took lot of time so it made the data collection process slow. Some of the authorities didn't allow collecting data from their universities thus the researcher could assess limited no. of participants. Students from different universities should be taken in order to increase the generalizability of research on the conditional effects of gender and delinquency on the relationship between emotional distress and suicidal ideation or attempt among youth.

4.2 Implications

The present research can be implemented in the following different ways

○ The results can be explained to parents and teacher that if they provide stress free healthy environment to adolescents they can prevent suicidal ideations which is the main factor contributing to suicide attempt.

- o The study will provide awareness to people to understand the dangerous aspect of anger in producing suicidal ideation which result in suicide attempt and can take life of students.
- o Research findings should help foster a better understanding towards the factors of suicidal ideation and provide awareness how suicidal ideation prevention strategies may be improved through an increased emphasis on anger and emotional distress management, direct targeting anger and distresses and exploring more sub avenues of self-expression for adolescents.
- o The present research provides idea for further researches that how family environment effect the anger and emotional distress in students. These ideas should be utilized to explore the respective field in detail and to provide important contribution in this field as it need more and more exploration.

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Gender Differences in Resilience and Psychological Distress of Patients with Burn Injuries

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Abstract

This research explored the gender differences in resilience and psychological distress in patients with burn injuries. It was hypothesized that there would be significant gender difference in resilience and psychological distress of patients with burn injuries. The sample of the study consisted of 50 patients with burn injuries, obtained from four different hospitals of Lahore. In order to investigate resilience and psychological distress, the State Trait Resilience Scales (Hiew, 2007) and Kessler Psychological Distress Scale (Kessler, 2001) were used. In addition to these, self-constructed demographic questionnaire was administered. The data was analyzed using SPSS version 16.0. Independent sample t-test was conducted to find gender differences in resilience and psychological distress. The findings from the current research revealed that there was significant gender difference in resilience and psychological distress of patients with burn injuries. The insightful findings from the current research carry strong implications for the clinicians, psychologists and policy makers who can help to develop and implement the rehabilitation programs for the affected population.

Key Terms: Burn Injury; gender differences; distress; resilience; trauma

1. INTRODUCTION

Major burn injury is one of the most severe traumas a person can endure, because skin is the largest organ of the body. Skin not only serves as defensive function but also maintains the shape and looks of the body. There can be many reasons to believe that survivors of massive burn injuries are likely to experience a diminished quality of life, suffer much psychological pain and many symptoms of psychological ill health (Patterson et al., 1993). First degree burns show redness; second degree burns show vesication, third degree burns show necrosis through the entire skin. Burns of the first and second degree are partial-thickness burns, those of the third degree are full-thickness burns. (Priscilla, 2008).

Burn injury is often a devastating event with long-term physical and psychosocial effects. Burn scars after deep dermal injury are cosmetically disfiguring and force the scarred person to deal with an alteration in body appearance. In addition, the traumatic nature of the burn accident and the painful treatment may induce psychopathological responses. The risk factors, related to depression are pre-burn depression and female gender in combination with facial disfigurement. Risk factors related to PTSD are pre-burn depression, type and severity of baseline symptoms, anxiety related to pain, and visibility of burn injury. Social problems include difficulties in sexual life and social interactions. Quality of life initially seems to be lower in burn patients compared with the general

population. From literature, it is concluded that cognitive (behavioral) and pharmacological (selective serotonin reuptake inhibitors) interventions have a positive effect on depression. In general, psychopathology and psychological problems are identified in a significant majority of burn patients (Ravage, 2004). “Resilience refers to a *dynamic process encompassing positive adaptation within the context of significant adversity*. Implicit within this notion are two critical conditions: (1) exposure to significant threat or severe adversity; and (2) the achievement of positive adaptation despite major assaults on the developmental process” (Luthar, Cicchetti, & Becker, 2000). “Psychological distress is a nonspecific term that encompasses sadness, frustration, anxiety and a number of other negative mood states” (Carney and Freedland, 2002, as cited in Kim, 2008).

Correspondingly Roca et al. (1992) examined the prevalence, natural history, and psychosocial impact of posttraumatic symptoms among adult burn survivors. Forty-three adult inpatients at a burn center were assessed at discharge with standardized instruments to determine the presence of psychiatric disorder, personality was assessed, and depression was measured. Thirty-one patients were evaluated 4 months after discharge. Posttraumatic stress disorder was diagnosed in 7% of patients at discharge and in over 22% of patients at follow-up. Symptoms of avoidance and emotional numbing tended to emerge after discharge from the hospital. While posttraumatic symptoms were associated with symptoms of depression, they were not strongly associated with psychosocial adjustment to illness; psychosocial adjustment was more strongly related to aspects of personality, the injury itself, and its treatment. Since adult burn survivors often develop new symptoms of posttraumatic distress after leaving the hospital, longitudinal surveillance is required to detect new cases and provide appropriate treatment. Survivors at risk for poor psychosocial adjustment after discharge may be identifiable during hospitalization, and preventive treatment strategies should be developed and tested for this population. A successful adaptation and adjustment after experiencing an adverse, hostile, or negative event is referred to as resilience which may be the protective shield and principle component of survival for survivors of a severe burn. Assessment of psychiatric outcomes with these patients may provide ways of measuring effects of acute burn care methods on later quality of life, specify more accurately their emotional needs during rehabilitation, and stimulate further research. One such study from realm of western research shows that thirty children, aged 7 to 19, with severe burns are compared with 30 non-burned subjects matched for age, sex, SES, and parents marital status. The burned children had significantly higher levels of overanxious disorder, phobias, and enuresis, but they had the same rates of present depressive disorders (Stoddard, Norman, Murphy, & Beardslee, 1989).

In the same way Brown, Roberts, Browne, Byrne, Love, and Streiner (2007) determined whether variables associated with psychosocial adjustment to a burn injury varied by gender. 260 Male and female burned subjects were compared on their functional disability, disfigurement, coping responses, social resources, and psychosocial adjustment to a burn injury. Both men and women had adjusted psychosocially to their burn injury. Less functional disability for men and greater problem-solving for women were the most important variables in explaining psychosocial adjustment to a burn injury.

1.1 Rationale

Patients with burn injuries have never been rigorously assessed as far as the gender differences in their psychological post states to burns are concerned. Current research is a pioneer attempt in Pakistan to unravel the dynamics of the recovery and psychological rehabilitation of such

patients. Since recent medical and surgical advances allow many severely burned patients to survive who formally would have died. Thus there arises greater need to review the important dynamics of their distress and resilience. The current research study caters sound understanding into dimensions of distress and resilience and how it systematically varies across both genders. Everyone has the ability to cope with distressing calamities. We have to help the patient in their problematic time so this study can tell how we can help burn injured patients according to their distress and resilience level. All of the patients deserve our most expert services. All the patients included in the study will come to know about their resilience and distress levels and they can be provided knowledge about this so they can cope with their problems easily. We can come to know their problems by the results. And this study can help clinicians and especially psychologists dealing with burn injured patients to enhance their resilience level and reduce their distress.

1.2 Hypotheses

- There are likely to be gender differences in distress and psychological resilience of patients with burn injuries.
- There is likely to be negative association between psychological distress and resilience.
- The distress and psychological distress will systematically vary with age.

2. METHOD

2.1 research Design

Cross sectional research design was used in the current research.

2.2 Sampling Strategy

Non-probability purposive sampling technique was used as the selection of the sample was contingent on certain specification.

2.2.1 Sample

The sample consisted of (N=50) patients with burn injuries was taken for collecting the data that were admitted in four majors hospitals of Lahore specially the hospitals setting that are extending their services in burn units/ Rehabilitation centers.

Table 1 Frequencies, Percentages, Mean and Standard Deviation of Demographic Variables of Patients with Burn Injuries (N=50)

Variables	<i>F</i>	%	<i>M</i>	<i>SD</i>
Age			1.78	.81
16-26 years	23	46.0%		
27-37 years	15	30.0%		
38-48 years	12	24.0%		
Education				
Educated	28	56.0%		
Uneducated	22	44.0%		
Occupation				
Employed	22	44.0%		
Unemployed	28	56.0%		
Monthly Income			2.04	1.21
Above 5000	21	42.0%		
Above 15000	16	32.0%		
Above 25000	7	14.0%		
Above 35000	2	4.0%		
Above 45000	4	8.0%		
Marital Status				
Married	28	56.0%		
Unmarried	22	44.0%		
Duration Of Marriage			2.36	1.53
0 years	22	44.0%		
1-5 years	9	18.0%		
6-10 years	6	12.0%		
11-15 years	6	12.0%		
16-20 years	6	12.0%		
21-25 years	1	2.0%		
No of Children				
0 Children	25	50.0%		
1-4 Children	16	32.0%		
5-8 Children	9	18.0%		
Family System				
Joint	31	62.0%		
Nuclear	19	38.0%		

Note: F=frequency, %= Percentage, M=Mean, SD=Standard Deviation

2.3 Assessment Measures

2.3.1 Demographic Questionnaire

A self constructed Demographic Questionnaire was also used for each participant to collect information about the demographics of the sample. This questionnaire carried information like age, gender, area, occupation, education, monthly income, marital status, duration of marriage, no of children and family system etc.

2.3.2 State Trait Resilience Scale (STRS) (Hiew, 2007) was used in order to assess resilience

the State-Trait Resilience Scale (STRS) was used which is developed by Chok Hiew (2007). It has two forms; a State Resilience scale and a Trait Resilience Scale. State Resilience Scale has 15 items with a 5-point rating scale and the respondents rate themselves on each statement describing them “at the present time”. The trait Resilience scale consists of 18 items of resilience traits in which respondents rate themselves on each item (from ‘strongly disagree’=1 to ‘strongly agree’=5), “from childhood” rather than at present time. Both state and trait resilience scales have two sub-scales each i.e. inter trait, inter-state, intra-trait and intra-state having cronbach alpha reliabilities of .79, .33, .69 and .72 respectively (Meo, 2010). The scale has been translated in Urdu by Jabeen and Kausar (2009), with due permission of the author.

2.3.3 Psychological Distress Scale (Kessler, 2001).

In order to assess psychological distress the Kessler Psychological Distress Scale by Kessler (2001) which consists of 10 items measuring the non specific psychological distress and is about the level of anxiety and depressive symptoms a person may have experienced in the most recent four week period. It is a 5 point Likert scale. All the items were in reverse scored. It has the maximum score of 50 which is interpreted as 10 to 15 low risks, 16 to 29 medium risks, and 30 to 50 high risks. The reliability of this scale range from .42 to .74 which indicates that Kessler psychological distress scale is a reliable instrument as reported by the manual. The Kessler’s Psychological distress has the cronbach alpha reliability of .89 for the present research.

2.4 Procedure

The permission was sought from the authors of the tools via email. The present tool of resilience and psychological distress was intended to be used on the target population which was culturally different from that of the original version. The Resilience Scale (Hiew, 2007) used was already translated one. And the Distress Scale was translated into Urdu. For this backward forward translation procedure was used in which two translators which include examiner and professional familiar with the terminologies of English and Urdu done this task. The second step was backward translation in which the forward translation was translated back into English version by the examiner and the bilingual (in English and the Urdu language for translation) expert panel and then these both translations were compared with the original version and then a pilot study was conducted on a sample of 20 patients before collecting the data. This was taken undertaken so that all ambiguities could be ruled out. Keeping in mind the forensic involvement of such cases, it was doubly ensured that the permission from the MS of the hospitals and from respective Burn Units. The sample was drawn from four different hospitals of Lahore. A consent form was given to the participants and they were ensured that the information acquired from them would be held confidential and was not used for any other purpose than this research. The average time taken to fill the questionnaires was 20-25 minutes. There were 10 participants who refused to sign the consent form, and therefore thus not included in the current sample. The questionnaires were administered in face-to-face. The data was entered in SPSS (Statistical Package for Social Sciences) version and descriptive and inferential analyses were undertaken.

2.5 Statistical Analysis

The SPSS (Statistical Package for Social Sciences) software version 16.0 was used to analyze the data. Descriptive statistics such as mean and standard deviation of the various factors that reflected resilience and distress in patients with burn injuries were tabulated. Pearson Product Correlation was used to analyze the relationship between resilience and psychological distress in

patients with burn injuries. Independent sample t test was used to analyze the demographics in patients with burn injuries.

3. RESULTS

This study aimed to find gender differences in resilience and psychological distress of patients with burn injuries.

3.1 Table Independent Sample t test Showing Differences in Level of Resilience and Psychological Distress with Reference to Gender in Patients with Burn Injuries (N=50).

Variables	Male		Female		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Interstate Resilience	23.16	4.25	20.84	4.19	1.94	.040	-.08	4.72
Intrastate Resilience	32.96	5.47	28.96	6.18	2.42	.019	.67	7.32
Intertrait Resilience	33.52	6.24	28.48	6.82	2.72	.009	1.32	8.75
Intratrait Resilience	36.64	5.43	25.04	5.98	7.17	.000	8.34	14.85
Psychological Distress	27.76	7.26	37.32	9.10	-4.10	.000	-14.24	-4.87

Note. M= Mean, SD= Standard Deviation, CI=Confidence Interval, LL= Lower Limit, UL= Upper Limit.

The results show that there was significant gender difference in interstate resilience of patients with burn injuries with (M= 23.16, SD= 4.25) (M=20.84, SD= 4.19) and there was significant differences in intrastate, intertrait and intratrait resilience of males with (M= 32.96, SD= 5.47), (M= 33.52, SD=6.24), (M= 36.54, SD=5.43) respectively and of females with (M=28.96, SD=6.82), (M=28.48, SD= 6.82), (M=25.04, SD=5.98) respectively which means males are more dependent on others and have more inner strength. It was also observed that there was significant difference in psychological distress of males and females with (M= 27.76, SD=7.26) and (M=37.32, SD= 9.10) respectively which means females take more tension.

Various supplementary analyses were also conducted as illustrated below:

3.2 Table: Cronbach Alpha Reliabilities of State Trait Resilience Scales and Psychological Distress.

Variable	Total Items	<i>M</i>	<i>SD</i>	<i>a</i>
State Trait Resilience Scale		-	-	.88
Interstate Resilience	6	22.00	4.34	.79
Intrastate Resilience	8	30.96	6.12	.85
Intertrait Resilience	9	31.00	6.95	.93
Intratrait Resilience	10	30.84	8.14	.92
Psychological Distress	10	-	-	.89

Note. M= Mean, SD= Standard Deviation, *a*= cronbach alpha reliability.

The Cronbach alpha Reliability calculated here revealed that State Trait Resilience Scale has .88 reliability and of Kesslers Psychological Distress Scale has .89 reliability. Pearson Product Correlation was used to see the relationship between resilience and distress.

3.3 Table Correlational Analysis between Sub Scales of State Trait Resilience Scales and Psychological Distress in patients with Burn Injuries (N=50).

Variable	interstate Resilience	Intrastate Resilience	Intertrait Resilience	Intratrait Resilience	Psychological Distress	M	SD
Interstate Resilience	1	.810**	.602**	.451**	-.387**	22.00	4.342
Intrastate Resilience		1	.824**	.639**	-.556**	30.96	6.124
Intertrait Resilience			1	.773**	-.564**	31.00	6.95
Intratrait Resilience				1	-.579**	30.84	8.145
Psychological Distress					1	32.54	9.474

Note. M= Mean, SD= Standard Deviation **p<.01

The results reveals that there was significant positive relationship between interstate resilience and intrastate resilience which means that patients who have more social have more inner strength in the present time that is of the trauma and there was also significant positive relationship also between intertrait and intratrait resilience which means patients who have social support from childhood till now have more inner strength. But there was a significant negative relationship of interstate resilience with psychological distress and also with intrastate, intertrait and intratrait resilience which means that patients having more social support and inner strength had less distress at the present time and in childhood also and if they have more distress their social support and inner strength was lessened.

3.4 Table Linear Regression for Predicting Resilience from Psychological Distress (N=50).

Predictors	B	SE	β
Constant	60.816	6.719	
Interstate Resilience	.355	.489	.148
Intrastate Resilience	-.567	.488	-.334
Intertrait Resilience	-.099	.379	-.066
Intratrait Resilience	-.488	.236	-.383*

Note. SE=Standard Error, β =Beta, *p<.05

The results revealed that P value of the Intratrait resilience was significant which means that the inner strength from childhood which has been established in the past is strong predictor of the experienced level of resilience. This means that with better inner strength, the experienced distress is less in its potency and effects.

Independent sample t test was used to see the gender differences between resilience and distress of patients with burn injuries.

3.5 Table Analysis of variances (ANOVA) to Check the effect of ages in patients with burn injuries in level of Resilience and Psychological Distress (N=50).

Source	Age	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Interstate Resilience	Between groups	2	1.539	28.39	.225
	Within groups	47		18.45	
Intrastate Resilience	Between groups	2	1.097	40.98	.342
	Within groups	47		37.36	
Intertrait Resilience	Between groups	2	2.596	117.88	.085
	Within groups	47		45.40	
Intratrait Resilience	Between Groups	2	4.967	283.60	.041
	Within groups	47		57.09	
Psychological Distress	Between Groups	2	1.044	112.45	.360
	Within groups	47		107.74	

Note. η^2 = Mean square.

The mean difference of age in resilience and distress was investigated by one way Anova (analysis of variance). There was a no significant difference in ages of burn injured patients in interstate, intrastate, intertrait resilience and psychological distress. This means that all there is no difference in social support at the present time and in childhood and there is also no difference in inner strength of the patients as they has same level of distress at the present time because no difference was found in distress also. The intratrait resilience was found significant in patients with burn injuries as it mean that inner strength varies in different age groups.

4. DISCUSSION

The topic of resilience has been explored in relation to other pathologies but its relation with burn injured patients was not explored. So an attempt has been made to explore its relation with resilience. The present research aimed to explore relationship between resilience and psychological distress in patients with burn injuries with reference to gender differences.

There were marked gender differences in perceived psychological distress and resilience. The present research findings are consistent with the study of Banano, Galea, Bacciarlli, and Vlahov (2007) that women were associated with less likelihood of resilience than men in stressful situation. And after a disaster stress lessens the resilience so this research supported the results of the hypothesis that there would be gender differences in resilience and psychological distress of patients with burn injuries. As the social support and inner strength was also found high in males probably because of their greater exposure to life as in Pakistan females are provided the restricted exposure to outside functional world. The hypothesis that there is significant difference in resilience and psychological distress of patients with burn injuries with respect to different ages, was not supported from the current findings. Consistent with the previous research of

Alvi et al. (2009) Depression was found in all groups of the age groups included in that study while according to Holaday and Terrell (1994) children and adolescents have same level of resiliency after burn injury. Fire in the current research appeared as the more frequent source of burns. In accordance with this, it is seen that Barillo and Goode (1996) also found out that fire was the major cause of burn in USA and it can be prevented by taking precautionary measures. In between six years seven hundred and twenty seven fatalities occurred. So, Fire prevention efforts should target home fire safety and should concentrate on children and elderly. The results from the present research revealed that there was significant negative correlation in resilience and psychological distress of patients with burn injuries as prominently more and more survivors reported disfigurement as main concern. Just as Madianos, Papaphelis, Ioannovich, and Dafri (2001) found that face disfigurement was the only burn characteristic associated with psychiatric disorder that means most of the burn patients has tension of their healing of wounds and disfigurement of body and loss of beauty also. So, the results can help inform professional helpers about the emotional pain that people suffer when they experience massive and multiple personal losses.

By professionals help the patients with burn injuries can improve and by telling them their resilience and distress levels their intervention programs can be enhanced and improved and their ability to complete treatment can be improved. Likewise, Kleve and Robinson (1999) found a significant correlation between individuals' perception of the severity of the injury and the degree of distress experienced and the two most popular preferences for help was individual counseling followed by professionally led groups.

There have been several limitations noted in the present research. Like there has been limited sample as acquiring data from burn injury patients is extremely difficult. Some patients were illiterate so it was difficult to get response from them for the questions. Time span was limited for the present research and no funding was available. As questionnaires used were in foreign language, they were translated so this might had affected the research data. This is very important to contribute some suggestions and they involve increasing some time, increase in sample size, inclusion of urban and rural sample and development of more established indigenous tools for data collection.

The current research study has strong implications for Implications for clinicians, therapists and community workers. Such counseling and Intervention Strategies for patients with burn injuries may be designed keeping to enhance their resilience and to reduce the distress levels.

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Economics I

Room 608 15:00-16:30, March 16

Session Chair: Dr. Gabriel A. Giménez-Roche

227

A Praxeological Analysis of the Socio-Cognitive Nature of Entrepreneurial Uncertainty

Gabriel A. Giménez-Roche | *Groupe ESC Troyes*

Elena De Preville | *Groupe ESC Troyes*

325

Group Farming and Productivity in the Muda Agricultural Development Authority of Malaysia

Jamal Ali | *Universiti Utara Malaysia*

Roslina Kamarudin | *Universiti Utara Malaysia*

Nariman Mohd Saad | *Universiti Utara Malaysia*

287

A Long-Run Relationship between the Trade and Its Determinants for a Group of Selected the Arab Maghreb Union Countries

Hussin Abdullah | *Universiti Utara Malaysia*

Norehan Abdullah | *Universiti Utara Malaysia*

Hadi Mohamad Othman Abuhriba | *Universiti Utara Malaysia*

172

The Tobin tax: Welfare and Monetary Policy Analysis

Jong Kook Shin | *Queen's University*

Chetan Subramanian | *Indian Institute of Management*

117

Technical Efficiency of Thai SMEs: The Application of Data Envelopment Analysis

Nongnit Chancharat | *Khon Kaen University*

Gary Tian | *University of Wollongong*

Surachai Chancharat | *Khon Kaen University*

175

Marginal Intra-Industry Trade and Labor Costs: The Smooth Adjustment Hypothesis (SAH): The Thailand Experience

Sujinda Chemsripong | *Naresuan University*

254

Examining the Antecedents of Top Management Team Support for Integrated Management Control Systems Innovations

Jessica Lee | *Australian National University*

Mohamed Z. Elbashir | *Australian National University*

Habib Mahama | *Australian National University*

Steve G. Sutton | *University of Central Florida*

A Praxeological Analysis of the Socio-Cognitive Nature of Entrepreneurial Uncertainty

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ABSTRACT

This paper aims at explaining the origins and persistence of uncertainty in entrepreneurial action. Ever since the introduction of the uncertainty problem with Knight (2006) and Mises (1996), it has been continuously mentioned without further development in entrepreneurship theory—a point that has been indicated by Davidsson (2003). In other words, uncertainty is recognized as a problem but seldom studied beyond this recognition. The present paper introduces the uncertainty problem by contextualizing it in the theory of action, that is, praxeology. Subsequently, a philosophical and sociological analysis based on social constructionism is given to better situate the uncertainty problem as one of information that escapes institutionalization into epistemically objective form. Although uncertainty affects action, it does not manifest ontologically but only epistemically, being a problem originating from the unique interpretation of reality made by entrepreneurs thus resulting in their venture ideas. In this manner, uncertainty is the fruit of the directedness and intimacy of individual interpretation. A thorough analysis of the attentional, rational, imaginative, and the emotional aspects of individual interpretation is given in order to show that the directedness and intimacy of entrepreneurial interpretation originates from the interplay of these cognitive factors that continuously feedback at each other maintaining interpretative uniqueness of reality. The potential applications of the present paper could help explain the futility of State incitation of entrepreneurship programs, as well as the inefficiency of public development programs that go beyond building an institutional framework securing investments towards direct intervention in the economic system.

Keywords: cognitive science, entrepreneurship, institutions, praxeology, uncertainty.

1. UNCERTAINTY AND ACTION

An enterprise is an action where an *agent*, the *entrepreneur*, directs and deploys productive means with alternative uses possible towards a given use in order to obtain a gain out of this use (Kirzner, 1979; Shane & Venkataraman, 2000). In other words, entrepreneurial action is projected through time and it is in this temporal projection that uncertainty emerges. Nevertheless, in pure ontological terms, uncertainty is not really a component of action because it is not an ontological element of it. The ontological elements of action refer to its actually existent elements and can be distinguished into objective and subjective categories of existence-dependence. The existence of objective elements is independent of any subjective judgment or mental state; they can be thus categorized as *ontologically objective* elements of action (Searle, 1995; 2001). This category of elements includes the subjects, objects, and environmental conditions of action (Mises, 1996; Parsons, 1949). The subjects consist of the *agents* directing and deploying the objects as *means* that can change their current situational

reality (Giddens, 1984). In terms of the enterprise, the agents consist of the entrepreneurs who ultimately decide on the direction and the deployment of relatively undervalued factors of production that will be processed into relatively overvalued end-products in order to obtain a profit (Giménez-Roche, 2011; Shane & Venkataraman, 2000).

The conditions of action, in their turn, are composed of any subjects or objects that are part of *other* actions that might influence or be influenced—without this implying any actual control—by the action being analyzed (Mises, 1996; Parsons, 1949). The conditions of action of an enterprise are usually the actions of other enterprises, the actions of its clients, and the actions of other individuals whose behavior can directly or indirectly impact the enterprise in spite of those behaviors not being related either to competition or to demand of the enterprise's product (e.g. governmental action, social movements, fads). Those other actions are therefore *external* to the enterprise. Consequently, the subjects and objects constituting them are beyond the control of the entrepreneurs, hence they being *conditions* of action that are thus taken for granted by the entrepreneurs.

Since the ontological elements of action exist beyond any mental state, there is no questioning of their *certainty*. In this manner, uncertainty has *no* ontologically *objective* manifestation in action.

Nevertheless, the mere verification of the existence of ontologically objective elements of action does not *mean* anything. Their existence is just a brute datum of reality devoid of any information about their role and attributes within the context of entrepreneurial profit-seeking. This problem of information is further reinforced by the fact that action is projected into the future. Means are directed and deployed towards an end that will come into being, if at all, only in the future (Mises, 1996; Parsons, 1949). Attribution of meaning, that is, understanding of the *functional* attributes or capacities of the ontologically objective elements of action is necessary in order for the entrepreneur to estimate if those elements can be organized in such a way as to tentatively produce a profit or not (Schütz, 1967; Searle, 1995; Weber, 1978). Since this attribution of functional meaning is done on top of ontologically objective elements by ontologically objective subjects, they are also part of existence in which the agents live. Notwithstanding this, these attributions of functional meaning are of a *subjective* nature due to their existence being dependent on the mental states of subjects; they are *ontologically subjective* elements of action (Searle, 1995; 2001).

Admittedly, the attribution of meaning is the fruit of an ontologically objective action on top of ontologically objective elements, *but this ontological act of functional meaning attribution is no guarantee of the epistemic consistence of the meaning in itself*. The truth or falsity of the judgments giving origin to those meanings is not of an ontological nature but of an *epistemic* one (Searle, 1995). In other words, *the epistemic consistency of such judgments depends on if the functional meaning attributed to the ontological element of action actually describes an ontological function of that element in making the agent's goals ontologically possible*. Uncertainty emerges out of the impossibility of ontologically establishing the functional consistency between epistemic meaning and ontological element.

For example, it is the identification of the attributed functional meanings of consumer, supplier, competitor, regulator, opinion-makers, among others that enable the entrepreneur to understand how the interaction between these ontologically objective subjects might generate a profit-opportunity. Furthermore, it is the identification of the attributed functional meanings of the factors of production—that is, the ontologically objective means—that allows the

entrepreneur to understand their relationship to the potential exploitation of the aforementioned profit-opportunity. However, the successful exploitation of a profit-opportunity can only be confirmed in the future. All the attributed functional meanings identified by the entrepreneur—namely, consumer, supplier, factors of production, etc.—must be confirmed as such not just by *present* ontologically objective elements but above all else by *future* ontologically objective elements. Nevertheless, the problem for the entrepreneur is that the decision about the direction and deployment to give to her means is made in the present with present ontologically objective data and not in the future. Given the impossibility of establishing the consistency of the functional meanings identified by the entrepreneur to actual ontologically objective elements, it is *uncertain* if her action will be successful or not. This is a problem about the validity of the entrepreneurial judgment about the consistency of the attributed functional meanings of her *present* means relative to her *future* conditions of action. Moreover, it is a problem of the validity of judgments about events that are not yet ontologically manifest, hence uncertainty being a pure epistemic problem.

In fact, it does not suffice for an epistemically objective judgment to be consistently tethered to an ontologically objective element of action. If an epistemically objective judgment is to have any value in social interactions—particularly if it is necessary for an agent to build expectations about social interactions—it must be expressed in a form that is intelligible to other agents. *Socially significant* epistemically objective judgments are thus manifest in the form of *institutions*. Only judgments that are expressed according to institutionalized conventions are intelligible to agents. For example, the measures and descriptions of physical facts are *socially* meaningful if they are expressed in a *common language*, namely mathematics. Similarly, historical facts are *socially* intelligible if they are expressed according to *commonly accepted rules* of historical research. And again, sociological facts are *socially* understandable if they are expressed in terms of *commonly recognized* types or categories of action. The meaning of the words used in this very article is intelligible only because it is written in a language—e.g., an institutional tool—that is understandable by its readers.

Institutions may arise out of habit and routines that are socially identified, assimilated, and adopted by individuals in a social group (Commons, 1931; Hodgson, 1998; 2001). They might also be the result of an imposition made by a formal (i.e. State) or an informal (i.e. community) authority (North, 1971; 1996). In any case, the important point is that institutions are intelligible to the agents in a social group. Furthermore, institutions are not just regulative rules that regulate previously existent actions into a certain form of behavior, they can also be constitutive, that is, rules that enable action (Searle, 1995). The former kind of institutions usually refers laws regulating habits and routines like driving cars, common life, and simple trade, among others. The latter kind of institutions involves rules that allow the emergence of action, like the rules of a sport or game, but also language and academic codes—without constitutive rules, it would be very difficult to establish a science or a profession based on specific knowledge beyond mere routines.

Since institutions imply a socially accepted and readily recognizable meaning about different ontological elements of action, particularly in what concerns behavior, they are a useful tool to build expectations and other form of anticipations about social interaction. If an agent can categorize this or that behavior in a certain type of institution that describes not only the meaning of the behavior but also the outcome of that behavior, then, the future becomes much more manageable to understand and predict. The more information about one's reality

can be explained by institutionalized knowledge, the easier it is to the agent to plan for the future.

The above is particularly true of entrepreneurs who can make use of contracts that regulate the actions of suppliers and consumers. Furthermore, trading and business laws also help to institutionally “stabilize” entrepreneurial reality, allowing the entrepreneur to concentrate only on information that is not institutionalized. Institutionalized information and knowledge allows the entrepreneur to economize time and effort because they supposedly already imply the verification of the link between epistemically objective judgment and an ontologically objective element of action.

Nevertheless, the fact that information about reality is institutionalized does not mean that it is *actually* based on an ontologically objective element of action. An example is the geocentric hypothesis in astronomy. Although it was socially accepted at the time, it was not really based on an ontologically objective element. Moreover, sometimes a behavior can be traceable back to an ontologically objective element of action, yet no categorical assertion of its epistemic truth can be done. For example, an entrepreneur plans to produce ice-cream next summer because last summer people *actually* consumed ice-cream. Nevertheless, past behavior does not prevent consumers from changing their preferences and choose to massively consume fruit smoothies next summer thus contradicting the entrepreneur. Just because one consumes dark chocolate does not necessarily mean that one loves it. Maybe one consumes it just for health questions.

In this manner, even if a judgment can be consistently traced back to but *not* validated by an ontologically objective element, then, the judgment is considered to be an *epistemic subjective* one (Searle, 1995; 2001). This does not mean that the judgment is false, only that its truth or falsity remains *uncertain* until some other ontologically objective element is unfolded by the agents thus validating the judgment or not (Shackle, 1967; 1969).

The uncertainty problem for the entrepreneur is that usually her venture ideas cannot be regrouped into a homogeneous class of epistemically objective events because they are a product of her *unique* interpretation of reality. It does not matter if institutions are available thus creating an epistemically objective link to ontologically objective facts of reality. Institutions are open to interpretation as any other piece of information and as such they can be misinterpreted by the agent. As long as interpretation remains eminently subjective, uncertainty remains a problem for the entrepreneur, for it will be a source of unique information that cannot always be categorized into an epistemically objective class of events. In fact, this complication is not just based on entrepreneurial interpretation, but on the interpretation of reality done by the other subjects that are a constituent part of the entrepreneur’s conditions of action. Since their behavior reflects their interpretation of reality, there will always be factors affecting the entrepreneur’s action and that she will not be able to take into consideration to build an epistemically objective class of events.

2. The Directedness and Intimacy of Entrepreneurial Interpretation

Meaning implies *interpretation*, which refers to the cognitive features of the agent’s mind. In order to avoid the debate over the physiological or spiritual nature of the mind, we shall simply assert that mind is “*a particular order of a set of events taking place in some organism and in some manner related to but not identical with, the physical order of events in the environment* [emphasis in the original]” (Hayek, 1976, p. 16). The order in question is the

totality of the organized cognitive processes of an agent. Those cognitive processes, or mental features, forms an inner reality that can only be perceived by the agent, but which is also at the same time the mental reference to the interpretation of the outer reality in which the agent lives. Nevertheless, the connection between the inner and the outer realities of the agent is not a one-way relationship. It is through the interpretation of the outer reality that the inner reality can be formed. But as the inner reality forms, it is used to interpret the outer reality in a recurrent two-way feedback between the two realities.

The interpretative mental features of the mind that establish the link between the inner and the outer realities of the agent are *attention*, *rationality*, *knowledge*, *imagination*, and *emotions*—all of them implying *directedness* and *intimacy*. Directedness refers to the fact that those mental features are directed towards a specific element of action at any given moment. In fact, the ontological target of one's interpretation is exposed to a double-directedness emanating from the agent. Indeed, the target is at the same time attributed a meaning by the agent who also interprets that meaning within its manifested context (Schütz, 1967; Schütz & Luckmann, 1973).

The entrepreneur does not perform a holistic interpretation of her reality. Her interpretation is directed at her customers, her suppliers, her competitors, and her socio-economic context in general, *relative* to her enterprise. In other words, the entrepreneur interprets the ontological and epistemic elements conforming what she believes is a profit-opportunity. Anything that is not estimated to be related to that profit-opportunity is outside of one's interpretation.

Intimacy, in its turn, denotes the privacy and uniqueness of the experience related to the meaning in question. In other words, mental states related to a meaning can only be *fully* experienced and known to the agent attributing and recognizing meaning to the targeted ontological elements (O'Driscoll & Rizzo, 1996; Shackle, 1969; 1979).

Entrepreneurs conceive of their enterprise as a venture *idea* (Davidsson, 2003). If this idea could be fully revealed to other agents, then, entrepreneurs would be able to fully synchronize their actions with that of others, for they would experience exactly the same meanings and thus act similarly (Hayek, 1980). Nevertheless, given one's preferences, personal experience, and personality, this outcome of mental synchronicity is empirically impractical. Entrepreneurs must explain their ideas and try to convince others of their feasibility (Burt, 2005; Blyler & Coff, 2003; Witt, 1998; Wood & McKinley, 2010). Since those ideas involve epistemically subjective judgments, how can the entrepreneur objectively explain the feasibility of her ideas? Although harmonization of actions is possible, it does not imply synchronization. It simply means that different individuals, with different conceptions of their objectives, collaborate within a same praxeological context in order to obtain their different objectives (Bastiat, 2007; Mises, 1996).

2.1 Attention and interpretation

The first connection between one's inner and outer reality is established by the *attention* brought to specific aspects of the latter. Attention is not the mere awareness of aspects of reality, but the selective concentration of one's information processing of specific aspects of reality, be it another agent or a situation involving agents or things (Chalmers, 1996; Ochsner & Kosslyn, 1999). Although attention can be captured by the environmental stimuli reaching the agent's mind from his outer reality, sustained attention is directed by the agent's inner mental reality (LaBerge, 1999). Intimacy is therefore subsumed in this directedness as only the individual has an experience of his inner reality.

The inner reality of the individual is filled with meanings based on emotionally and rationally processed information of past and imagined experience generates cognitive tendencies in the agent's perception (LaBerge, 1999). These cognitive tendencies can be either goal-directed or stimuli-driven (Yantis, 1993). In the first case, the agent decides on a goal or set of goals and directs his attention to outer elements he estimates to be related to those goals (Baddeley, 1986; McClelland & Rumelhart, 1981). In the second case, outer stimuli capture the agent's attention (Posner, 1978; Treisman & Davies, 1973), but this attention will only be persistently sustained if "validated" by the agent's goals (LaBerge, 1999).

Entrepreneurial attention is thus based on the entrepreneur's profit-seeking goals emerging from her inner reality (Haynie, Shepherd, Mosakowski, & Earley, 2010). This does not mean, however, that her attention will be pre-determined by those goals, but that it will be sustained by them. In other words, the entrepreneur will direct her attention to elements in her outer reality that she estimates to be linked to a potential profit-opportunity, but might also be alert to new elements that might be linked to that same opportunity. In this manner, the entrepreneur attentively searches for what she estimates to be undervalued factors of productions relative to the potential value of their end-products (Huerta de Soto, 2009). The entrepreneur also looks for information regarding her competitors, suppliers, and other elements that can influence the potential success of her acquisition and organization of "undervalued" factors of production (Chell, 2000; Fletcher, 2006; Lindgren & Packendorff, 2009). Furthermore, nothing prevents the entrepreneur from having her attention called to other elements for which she was not necessarily paying heed at first, but which prove to be linked, according to the entrepreneur's inner reality, to the opportunity in question. Consequently, entrepreneurial attention is directed at subjects, objects, and conditions of action that the entrepreneur intimately associates to be related to her opportunistic goals.

2.2 Rationality and interpretation

The information captured by attentive perception must then be processed as something contextualized. The mere meaning-attribution of the data captured by the agent's attention is not sufficient to give it context. This is done through *rationality*, that is, the agent's capacity to organize his subjective perceptions within the context of both his past experience and prospective situation. Only information that has been attentively perceived—be it goal-directed or stimuli-driven perceived—is processed into knowledge. Therefore, rationality is always directed at the object of attention. It is that object that will be meaningfully contextualized in the agent's inner reality. Moreover, since rationality is dependent on one's inner reality and not on other's inner reality, rationality is profoundly intimate.

Rationality organizes information by means of rules that are based on the agent's inner reality. The ontology of action as described above presupposes the general analytical rule of the means-ends framework where different alternative ends are compared in order to subsequently determine the means to be used in attained the chosen end (Gilhooly, 2005). Nevertheless, agents do not dispose of all means possible to all possible ends. More often than not, they are constrained by the availability of means, being thus limited in their choice of ends (Sarasvathy, 2008). Furthermore, different means have alternative uses, that is, they can be used to alternatively produce one or another end (Mises, 1990; 1996). This is further aggravated by the problem of knowledge dispersion (Hayek, 1980). Since no individual holds all possible knowledge—as it is dispersed through society—then, rationality or the processing of information into knowledge is always constrained. In other words, optimal processing in the Walrasian sense is simply impossible due to its presupposition of complete information

(Klein, 2002). Rationality is always constrained because the agent cannot include all knowledge possible within his information-processing capacities simply because he does not dispose of it—apart of hardly disposing of enough time to recall it all for decision-making. Although optimization of information-processing is still possible, it is a satisficing optimization based on the best knowledge available to the agent (Simon, 1958; 1959). Cognitive biases also affect information-processing as the inner reality is imprinted with one's beliefs and affects (Kahneman & Tversky, 1979). Thus, not all possible actions can be considered by the agent (Etzioni, 1988) and neither can he consider all consequences possible out of his own actions (Hindess, 1988). Social routinization, imitation, or institutional isomorphism between individuals can also affect information-processing as agents imperfectly mimic each other's decision-making abilities (DiMaggio & Powell, 1983; Hacking, 1982; Hannan & Freeman, 1989; Hawley, 1968).

Therefore, other more specific rules are necessary to support the general means-ends rational framework. These time- and effort-saving rules, known as heuristics, take into consideration the insufficiency of knowledge as well as that of time of the individual resulting in more or less simple decision-making processes (Kahneman & Tversky, 1982; Tversky & Kahneman, 1974). The agent will use a specific heuristic rule about an attentively perceived situation of reality according to how his inner reality reacts to such a situation, further reinforcing the connection between outer and inner realities (Todd, 2002). These heuristics are as varied as the inner reality of the agent and can be based on the simple extrapolation of past experiences, counterfactual thinking, step-by-step planning, among others.

Entrepreneurial rationality is aimed at organizing information about profit-opportunities. As entrepreneurs specialize in opportunity-recognition, they make use of their heuristic decision-making and biases, as well as more complex reasoning tools, to process opportunistic information (Baron & Ward, 2004; Busenitz & Barney, 1997). Intimacy is revealed in the particular choice and structure of the decision-making tools necessary to process information.

2.3 Knowledge and Interpretation

Once information is processed by rationality, it becomes part of the agent's inner reality as knowledge (Davenport, 1997; Machlup, 1980; Spek & Spijkervet, 1997). Since knowledge is the product of a rational processing of attentively perceived information, it is imprinted from its very inception by both directedness and intimacy. Indeed, the directedness and intimacy of knowledge is primordially derived from the directedness and intimacy already present in one's attention and rationality. Nevertheless, stocked knowledge can be recalled by the agent in order to direct attention and to feed rationality with the necessary information about meaning and context for the building of decision-making rules. This feedback does not necessarily result in a reinforcement of the directedness and intimacy already present in attention and rationality—though this can also happen—for knowledge can be reinterpreted by the agent within his mind (Bergson, 1911; 1960; Brentano, 1995). Consequently, knowledge is a necessary—though not sufficient—determinant of the intimacy of attention and reason. Indeed, it is within knowledge that the agent finds the “catalogue” of meanings available to him and that can be used to interpret reality (Schütz, 1967; Searle, 1995; 2001). Notwithstanding this, knowledge about the “same” situation or object can change as new information about such elements is processed by rationality (Harper, 1996; Shackle, 1967; 1969).

Since sustained attention implies understanding of what is being perceived, it is as a result of that, always coupled with directed and intimate rationality, which is itself based on directed

and intimate knowledge of reality (Bergson, 1911; Harper, 1996). Moreover, rational rules of information processing emerge from knowledge because they are rules about meaning-organization and contextualization, and meaning is found within knowledge.

Entrepreneurial knowledge centers on profit opportunities and any related element. Upon its formation, it is imprinted with the directedness and intimacy of entrepreneurial attention and rationality. As the entrepreneur accumulates knowledge about enterprising, this knowledge feeds back into attention and rationality, further defining the directedness and the intimacy of entrepreneurial inner reality (Chell, 2000; Haynie, Shepherd, Mosakowski, & Earley, 2010). The knowledge stocked in the inner reality of the entrepreneur then is recalled by the entrepreneur to define rules for recognizing, conceiving, and exploiting potential opportunities thus feed backing into her rationality and attention (Baron & Ward, 2004; Shepherd, McMullen, & Jennings, 2007; Sarason, Dean, & Dillard, 2006).

2.4 Imagination and Interpretation

Accumulated knowledge does not necessarily maintain the same directedness and intimacy through time. As mentioned above, accumulated knowledge can and do usually change. One of the reasons for this change is due in great part to imagination. Imagination is the agent's capacity to productively and reproductively experience the stimuli processed into knowledge. Reproductive imagination refers to the agent's capacity to revive past acknowledged stimuli, but nothing guarantees that this reviving will be marked by the same directedness and intimacy. Since the first processing of those stimuli into knowledge, the agent might have accumulated more knowledge that significantly changed the structure of his inner reality (Harper, 1996; Shackle, 1967; 1969). Therefore, the reviving of past knowledge not only involves possibly new directedness and intimacy in one's inner interpretation of it, but also results into new knowledge for the individual (Brentano, 1995). This new knowledge can therefore feedback into the agent's attention, rationality, and modify previously accumulated knowledge. Productive imagination in its turn refers to the agent's capacity to experience stimuli within his mind that he did not actually experience—at least not in the forms he imagines them (Brentano, 1995). This creative use of imagination might involve past knowledge, but do not need to limit itself to it. Indeed, productive imagination might lead to totally new knowledge, which is not bound to past knowledge. Moreover, this creative knowledge can also have the same impact as any other knowledge on the directedness and intimacy of the agent's interpretation (Brentano, 1995).

Entrepreneurial imagination is the key to opportunity exploitation because it can both guide opportunity recognition and lead to the conception of opportunities. Reproductive imagination can help the entrepreneur in the reinterpretation of past opportunity-exploitation, be them successful or not. This can help her evaluate or reevaluate an opportunity by contextualizing it to all its alternatives known to her (Dew, Velamuri, & Venkataraman, 2004; Witt, 1998). As a consequence of that, entrepreneurs not only might identify other aspects of opportunities that they neglected previously, but they might also learn with past errors by identifying them. Productive imagination, in its turn, is the foundation for the conception of new ways of exploiting current opportunities or of entirely new opportunities that had not been conceived or recognized previously (Dew, Velamuri, & Venkataraman, 2004; Sarasvathy, 2008).

2.5 Emotions and Interpretation

The inner reality of the agent is not limited to rational rules or to rationally-interpreted knowledge, but it is also influenced and imprinted by one's emotions. Emotions are processes

that participate in goal management without being of a rational character. They are more of a readiness to act in a certain way given the relationship of an ontological event to one's goals (Frijda, 1986). In other words, it is a mental tendency in action toward anything intuitively appraised as good or bad, suitable or unsuitable (Arnold, 1959; 1960). Although this includes immediately appraised emotions, like those ones following physiological states of immediate pain and pleasure, it also includes mediately appraised emotions. Mediately appraised emotions involve a reflective appraisal based on one's knowledge, thus supplementing and even "educating" the basic intuitive appraisal of an agent's emotional state (Arnold, 1960). Further cognitive supplementing is given by coping emotions, that is, one's capacity to adapt cognitively and behaviorally to external and internal stimuli appraised as stressful (Lazarus, 1966; 1991). In this manner, though emotions do not apparently follow rational rules of information processing, they can be appraised according to such rules through some form of labeling thus generating adapted responses to such emotional reactions (Lazarus, 1984; 1991; Schachter & Singer, 1962; Schachter, 1964). This appraisal, however, already implies the interaction of emotions with rationality and knowledge. But if emotions were aroused as a rational rule, then, they would not be emotional states but information-processing mental tools. Their distinct nature resides in that in their immediate arousal, they are based on affect rather than on cognition (Zajonc & Markus, 1982; Zajonc, 1984).

Emotions primordially involve the intuitive appraisal of an action situation as suitable or unsuitable to the agent independent, at first, of any rational cognition (Arnold, 1960; Zajonc, 1984). The directedness of action is given by the very source of stimuli to the agent, that is, emotions are directed at those stimuli. The intuitive character of emotions gives them their intimacy, for they arouse in the individual agent and nowhere else. Reflective appraisal involves the evaluation of the relation between the intuitive appraisal of the agent and his environment (Lazarus, 1991; 1995). This evaluation engages the agent's knowledge, thus creating a feedback between the directedness and intimacy of the knowledge and that of the emotion. The contextualization through knowledge that is obtained by means of reflective appraisal can lead to an altered emotional response by the agent. Emotional coping is the further evaluation of this altered response in order to adapt it to the situation (Lazarus, 1966).

Furthermore, since emotions are part of the intimate experience of reality that is attentively perceived by the agent, they are also part of the information that is processed by reason. Knowledge is thus imprinted with emotions and can arouse those emotions whenever recalled, thus resulting in feedback in imagination.

Entrepreneurs feel different emotions when recognizing, conceiving, and exploiting profit-opportunities. They intuitively appraise information related to their ideas or perceptions of profit-opportunities as that information arouse certain emotions in the entrepreneur (Baron, 2007; Welpe, Spörrle, Grichnik, Michl, & Audretsch, 2012). The rational contextualization of those emotions within the entrepreneur's environment allows the entrepreneur to give an emotional response to that information beyond the immediate arousal of the emotion. Thus, given the contextualization made by the entrepreneur, she can understand such and such information or such and such course of action as being more or less suitable to her profit-seeking behavior (Haynie, Shepherd, Mosakowski, & Earley, 2010). In consequence of that, the entrepreneur will be able to associate certain situations arousing certain kinds of emotions to more or less successful paths of action toward opportunity exploitation (Foo, 2011).

2.6 Uncertainty and Interpretation

This part should conclude on the cognitive analysis of interpretative uncertainty.

3. IMPLICATIONS FOR FURTHER RESEARCH

This part should show how the problem of interpretative uncertainty puts into question the role of the State in promoting entrepreneurship or in development programs where it has an active participation beyond institutional framing of entrepreneurship activity.

4. CONCLUSION

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GROUP FARMING AND PRODUCTIVITY IN THE MUDA AGRICULTURAL DEVELOPMENT AUTHORITY OF MALAYSIA

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ABSTRACT

The paddy sector assumes a strategic position in Malaysia. This is due to its importance in the context of self-sufficiency, income generation and job opportunities especially for rural population. The Malaysian government has set of achieving self-sufficiency level in rice production at about 65-70% of the local consumption. In order to achieve the objective, the government has implemented many strategies, such as group farming project in Muda Agricultural Devevelopment Area (MADA). The study was conducted on four MADA areas representing four scheme, namely the 10 tones Project, Estate Paddy Project, Model Farm Project and other areas (not participating in any group farming projects). The proportionate multistage stratified random sampling technique involving the area sampling method and the systematic method was employed to select 664 respondents. A structured questionnaire was used as an instrument to elicit information from the respondents. An econometric model and other statistical techniques was used to estimate effects of group farming project on productivity, farmers income, effectiveness of the project and perception towards the project. The study shows that, in term of economic return dimension, project estate paddy more successful in increasing the paddy production. It is also clear that there is some improvement in farm management, paddy plantation technique, mechanization and controlling insects and weeds. The study makes a number of suggestions for improving the effectiveness of group farming projects. Recommendations include in the project planning and implementation of group farming, factors such as age of the participants, the real economic return, and administration management and willingness of the farmers to give their land for the purpose of implementation of group farming.

Keywords: self-sufficiency, group farming; productivity; effectiveness

1. INTRODUCTION

At most basic level, the key to ending poverty is to enable the poor to get their foot on the ladder of development. Capital is accumulated when households saves a part of their current income, or have a part of their income taxed to finance investments by the government. Household savings are either lent to businesses (often through financial intermediaries such as banks) or invested directly in family businesses or equities traded in the market. Household in agriculture sectors, such as paddy sectors also needs saving and capital accumulation to increase their income and standard of living.

Agriculture has been playing an important role in our livelihood and economic development and it is dissimilar with other economic activities. Unlike other economic activities, agriculture is very pivotal to human survival. This is because humans need food to continue their life and agriculture is the basis of eco-systems and rural development. In Malaysia,

agricultural sector is considered as one of the largest contributors to the country's economy after manufacturing and service sector. This sector plays an important role food security as well as in eradicating poverty in the country (Ali and Hussin, 2012). In its basic form, food security may be defined as "access by all people at all times to the food needed for a healthy life" (Redzuan and Aref, 2009). At one extreme, food security entails dependence on food imports should be avoided. The nations which rely on food imports may have to pay heavy prices during times of food shortages (Norsida, 2009).

Agricultural sector is always being seen as a sector that has high incidence of poverty which due to low productivity and income. The income from agriculture sector is much lower as compared to the other sectors. The problem of poverty is a factor that ruins the stability of rural community. Low income in this sector also becomes the reason why most people tend to work in industrial sector which offers much higher income to them. As a result, agricultural sector faces with the problem of lack of workforce and unemployed land (Norsida and Sami Ismaila, 2000).

Paddy cultivation is one of the activities in agricultural sector. The term 'paddy' is basically referred to rice cultivated in low land with irrigation. Rice cultivation in Malaysia could be considered as one of the first irrigated rice production system perceived in Asia. The average yield in the granary areas is about 6.1 t/ha ere (MADA, 2009). The total paddy planted area in Malaysia is about 415,781 ha where 204,578 ha within the eight granary areas and about 211,213 ha outside the granary areas (Ali and Hussin, 2012).

Kedah is the only state that has the largest paddy planted area in Malaysia. It is popularly known as "*Jelapang Padi Malaysia*" or "The Rice Bowl" since most of its residents depends on paddy farming as their main source of income. From the total paddy planted area in Peninsular Malaysia, the width of the paddy planted area in Muda Agricultural Development Authority (MADA) in Kedah is 96,558 ha, which is about 23% to the paddy planted area in Malaysia (MADA, 2009). Ali and Hussin (2009) stated that in MADA, there are approximately 55,130 paddy farmers which depend on paddy cultivation as their main source of income. Majority of the paddy farmers are small holders with an average farm size of 2.12 hectare (ha). In addition, these smallholders face with the problem of higher cost of production, low input and low yield of poor quality produce. Since the cost of rice production is higher and keeps increasing from year to year, thus the government is always doing a survey on the farmers' net income per hectare and takes appropriate actions in order to ensure that the return earned by the farmers suits with their effort and the total production obtained by the country is higher.

Since paddy cultivation is a sector where most rural people in Malaysia involve, thus government is always come out with new programs such as modernization through the use of machinery, chemical fertilizer, insecticide, irrigation system and many more with the aim to achieve socio-economic objective which is to increase farmers' standard of living as a whole. MADA had introduced the paddy yield expansion program towards 10 ton or known as 10 Tons Project in 2001. This project was started at the area with the width of 740 ha, and there were 551 of paddy farmers joined it. The implementation of the 10 Tons project involved the provision of farming inputs, soil analysis, land flatten program as well as farm mechanization program. This project was carried on together with the Rice Check program. With the implementation of this project, the average yield of paddy in the 10 Tons Project areas was higher and consistent at minimum level of 5.5 t/ha. Based on the yield analysis of the 10 Tons Project until the year 2008, the average yield of paddy was 6.13 t/ha with the farm size of

35,257 ha.

In 2007, MADA had implemented Paddy Estate Project in order to ensure the management aspect of paddy cultivation activity is orderly managed. The rationale behind the implementation of this project is to increase the productivity of paddy production consistent with the new government policy which aimed at increasing self sufficiency level of the country's rice from 73% in the year 2006 to 90% in the year 2010 (MADA, 2010). Paddy Estate is a business project which managed centrally, systematically and efficiently, comprising at least 40 ha of paddy planted areas where the return is distributed to each shareholder or project participant (MADA, 2010). Basically, this project is under the patronage of Farmer Associations (FAs). FAs are responsible in setting up the Paddy Estate, in providing budget to the implementation of the Paddy Estate, in hiring workers to manage the Paddy Estate and in providing credit to each participants of the project. At the beginning of the implementation of Paddy Estate MADA which is in the year 2007, there were only 37 estates with the width of 2,044 ha (MADA, 2010). However, the number of estates increases to 148 estates in the year 2008 with the width of 4,767 ha. This project had showed the increasing average of yield for about 3.0% which from 6.2 t/ha (2007) to 6.4 ton/ha (2008). This Paddy Estate Project gives lots of benefits to the participants. It can help farmers to reduce the production cost and to minimize the involvement of broker in the process of planting and paddy harvesting. In addition, this project can also change the uneconomic size of land holding to the large scale holding in order to achieve the scale of economics in the level of production.

With the existence of the development programs strategy such as group farming in agricultural sector especially in paddy cultivation sector, thus farmers can enhance their knowledge regarding the technical system that is applied in it from time to time. This will then increase farmers' productivity and income as well as improves their standard of living.

2. MOTIVATION OF THE STUDY

The technique of group farming was developed mainly through active participation of farmers and MADA officers. Basic questions about group farming productivity and yield risk effects thus remain unanswered. Nonetheless, limited research center and on-farm trials from Asia have shown that yields can consistently be increased with better management with a good quality of seeds and fertilizer. The results from increases in yields associated with group farming adoption have led many to believe that this method could improve the standard of living of farmers in Muda area.

While some farmers in Muda areas have adopted and continue to practice group farming, much of the research community observing group farming's have been puzzled three facts that call into the oft-asserted superiority of the method. First, adoption rates have been low. Second, some farmers who practice group farming continue to practice traditional methods on some of their land, even after several years of experience with the new method.

The objectives of the present study are to assess the impact of the implementation of group farming program on farmers' standard of living in the Muda area. Specifically, it seeks to (a) determine the socio-economic effects of group farming, (b) estimate the effect of group farming on the total paddy production, and (c) measure the farmers' standard of living before and after participating group farming.

3. LITERATURE REVIEW

Groups are important as a way to develop a collective action to farmers which provide resources such as credit, labor and information. Groups enable farmers to apply new technologies, to gain benefits from economies of scale, to have stable relationships with suppliers, and to set rules for the management of natural resource (Place et al., 2002; Davis, 2004). Conceptually, group farming refers to the situation where two or more farmers working together in farm production (Bartholomaeus and Powell, 1979). A group farm which fully integrated involves the putting together of all the production resources of a few farms into one business organization (Bartholomaeus and Hardaker, 1981). There are four types of resources which are land, capital, labor and management. Ownership of land is preserved by the individuals who lend out their land to the new operating unit. Capital such as machinery and livestock is contributed by the individuals involved as the source of the new business unit. The individuals involved then supply their labor and management skills to the farm group.

Group farming was carried out as a way to solve problems faced by small farmers. It was basically formed by the farmers voluntarily to gain more benefits than individual farming. The main objective of group farming is to make use of the scarce resources such as labor, land and capital more efficiently. This could only be achieved by greater participation of farmers, more effective of inputs delivery and other support services, for instance credit, better utilization of farm machinery and agricultural facilities as well as better marketing of farm outputs. Group farming might also be called as a special form of cooperative or collective farming in most literatures. It was also known as joint farming where farmers jointly use the farms inputs. As stated by Engindeniz and Yercan (2002), “The group farming is characterized by jointly using land and agricultural inputs”.

Farmer groups have proven to be a useful way to get approach to a community and to spread out knowledge to other farmers. Group acts as an efficient way for farmers to share information and experience. Rouse (1996) noticed that being part of a group contributed to knowledge sharing, empowerment as well as confidence and ability to make decisions among members. Davis (2004) stated that 63% of farmers surveyed in Embu Central, Kenya preferred to join groups rather than individual farmers for information on tree planting. The group farming technique was developed mainly through participatory, on-farm research by practitioners, with research scientists joining the process at the same time. However, basic questions about group farming’s true productivity and yield risk effects thus remain largely unanswered.

4. METHODOLOGY

This study uses primary data on 664 paddy farmers’ in the Muda Agricultural Development Authority (MADA). Survey was conducted between January and July 2010. The multistage sampling technique involving the area sampling method and the systematic list sampling method was employed to select the respondent to select respondents from Paddy Estate Project, 10 Tones Project and *Projek Ladang Contoh*. Basically, there are many factors influencing the farmers’ total production of paddy. This study’s framework is consistent with the research study done by Oluyole and Sanusi (2009) and Olujenyo (2008) model which consist of independent variables that have a relationship with dependent variable to gain a significant result. The brief explanation about the model was as follow:

$$T\_Prod_i = f(PEP_i, TTP_i, PLC_i, Age_i, Gender_i, M\_Status_i, H\_size_i, Edu_i, Exp_i, L\_Ownership_i, F\_Size_i, Subsidy_i) \dots\dots\dots (1)$$

(T_Prod)	=	Total production of paddy
PEP	=	Paddy Estate Project
TTP	=	10 Tons Project
PLC	=	<i>Projek Ladang Contoh</i>
Age	=	Age
Gender	=	Gender
M_Status	=	Marital status
H_size	=	Household size
Edu	=	Educational level
Exp	=	Years of experience
L_Ownership	=	Land ownership
F_Size	=	Farm size
Subsidy	=	Subsidy

From the models, the dependent variable is the *T_Prod*. There are 12 independent variables chosen which are *PEP*, *TTP*, *PLC*, socio-economic variables (*age*, *gender*, *M_Status*, *H_size*, *Edu*, *Exp*, *L_Ownership*, and *F_Size*) and subsidy.

5. RESULTS AND DISCUSSION

Descriptive Analysis

In order to conduct this study, information on the farmers' and paddy cultivation background as well as their standard of living was collected from the respondents. In this study, 664 questionnaires were distributed to the selected farmers in the two residential areas which located in the Muda area.

Socio-economic Status of Farmers

Table 1 shows majority of farmers choose to join Paddy Estate Project. Out of 664 respondents, 264 or 40% of respondents join Paddy Estate Project, 146 or 22% join the 10 Tons Project, 133 or 20% join the Model Farm Project and 121 or 18% join outside those three projects.

T Out of 664 respondents, about 80% or 533 are male farmers and 20% or 131 are female farmers. The Paddy Estate Project comprises the highest number of male and female farmers as compared to the other projects. As shown in Table 1, out of 264 farmers in the project, about 82.6% are male farmers and 17.4% are female farmers. In 10 Tons Project, out of 146 farmers, the percentage of male and female farmers is 75.3% and 24.7% respectively. For Model Farm Project, out of 133 farmers, there are 85.7% of male farmers and 14.3% of female farmers while for other projects, out of 121 farmers, there are 75.2% of male farmers and 24.8% of female farmers.

Table 1: Frequency distribution of participants according to demographic characteristics

Characteristic	Frequency	Percentage
Occupation		
Type of group farming		
Paddy Estate Project	264	40
10 tons Project	146	22
Model Farm Project	133	20
Others	121	18
Gender		
Male	533	80
Female	131	20
Wholesaler	6	3.00
Male	(5)	
Female	(1)	
Retailer	4	2.00
Male	(4)	
Female	(0)	
Age (year)		
< 30 year	3	1.57
31 – 40 year	25	13.09
41 – 50 year	54	28.27
51 – 60 year	75	39.27
>60 year	34	17.81
Experience		
< 5 year	8	4.19
5 – 10 year	19	9.95
11 – 15 year	19	9.95
16 – 20 year	37	19.37
21 – 25 year	16	8.38
26 – 30 year	41	21.47
>30 year	53	27.75
Marital Status		
Married	195	97
Single	6	3

The finding also shows that majority of farmers in the study areas aged between 56 to 60 years old. The Paddy Estate Project has the highest percentage of farmers who aged between 56 to 60 years old which is 21.2% followed by 21.1% in the *Sample Farm Project*, 15.7% in other projects and 14% in the 10 Tons Project.

OLS Regression Result on the Paddy Production

An OLS regression was used to estimate the relationship between the dependent variable and the independent variables. Table 2 below shows the result after the equation (1) was regressed. Refer to the Table 4.5, the dependent variable is the farmers' total production of paddy (T_Prod) whereas the independent variable X_1 is Paddy Estate Project (PEP), variable X_2 is 10 Tons Project (TTP), variable X_3 is *Sample Farm Project*, variable X_4 is age, variable X_5 is gender, variable X_6 is marital status (M_Status), variable X_7 is household size (H_Size), variable X_8 is educational level (Edu), variable X_9 is years involve in paddy cultivation (Exp),

variable X_{10} is land ownership (L_Ownership), variable X_{11} is farm size (F_Size) and variable X_{12} is subsidy.

Based on the regression result in the Table 2, the R-squared is 0.113 which means that only 11.3% of the variation in the total production of paddy is explained by the independent variables. However, since the p-value for F-test is less than the significance level of 0.05, thus, the null hypothesis is rejected. This indicates that there is linear relationship between the total production of paddy and the independent variables. Hence, the OLS regression line fits the data statistically and the overall equation is significant. Also, the result shows that, out of 12 independent variables, eight variables are significant.

Table 2: Model OLS 1
OLS estimates using 650 observations 1-650
Dependent variable: T_Prod

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	1697.2	141.246	12.0159	<0.00001	***
PEP	40.4512	41.2794	0.9799	0.32749	
TTP	46.8725	32.0895	1.4607	0.14460	
PLC	214.935	46.5512	4.6172	<0.00001	***
Age	-4.72319	2.66483	-1.7724	0.07680	*
Gender	7.96628	44.0384	0.1809	0.85651	
M_Status	-245.058	114.505	-2.1401	0.03272	**
H_Size	21.1435	10.0627	2.1012	0.03602	**
Edu	30.3358	18.3224	1.6557	0.09828	*
Exp	0.936608	2.26176	0.4141	0.67894	
L_Ownership	137.394	40.5882	3.3851	0.00076	***
F_Size	-8.69825	4.01128	-2.1684	0.03049	**
Subsidy	0.044311	0.0121381	3.6506	0.00028	***

Unadjusted R2 = 0.113091

F-statistic (12, 637) = 6.768751 (p-value < 0.00000)

Note: *** significant at 1% level
 ** Significant at 5% level
 * Significant at 10% level

Compared to farmers who are in other group farming programs, the total paddy production of farmers in PLC is higher by RM 46.87 per *relong*. The variable *PLC* is positively significant in influencing the total production of paddy since the p-value for t-test is <0.00001 which is less than the level of 1%. This is probably due to the fact that the management of farm in this project is much better as compared to the other projects which then lead to the higher production of paddy yield.

Variable *Age* has a negative relationship with the total production of paddy. The coefficient value is -4.72319 which mean that with one year increase in a farmer's age, the total production of paddy will decrease as many as RM 4.72 per *relong* with the assumption that other variables are constant. The inverse relationship between *Age* and total production of paddy is contrary to a prior expectation. This is probably due to the fact that the older the age of a farmer, the less ability to work and hence the less will be the productivity of the person. The result also shows that the variable *Age* is significant to influence the total production of paddy since the p-value for t-test is 0.07680 which is less than the level of 10%.

Variable *M_Status* has a negative relationship with the total production of paddy. The coefficient value is -245.058 which mean that compared to married farmer, the total paddy production of single farmer is lower by the amount RM 245.06 per *relong* with the assumption that other variables are constant. The negative sign of *M_Status* is opposing to a previous expectation. This could be due to fact that married farmers tend to work hard to increase their paddy yield in order to earn higher income to support their family as compared to the single farmers. Besides, married farmers tend to produce more paddies themselves in order to feed their family so that they do not need to purchase from outside. The variable *M_Status* does affect the total production of paddy significantly since the p-value for t-test is 0.03272 which is less than the level of 5%.

Variable *H_Size* has a positive relationship with the total production of paddy. The coefficient value is 21.1435 which mean that with the additional one member of household, the total paddy production will increase as many as RM 21.14 per *relong* with the assumption that other variables are constant. The variable *H_Size* is significantly affecting the total production of paddy since the p-value for t-test is 0.03602 which is less than the level of 5%. This is so because the larger the size of household, the more paddies will be produced by the farmers in order to feed their family.

Variable *Edu* has a positive relationship with the total production of paddy. The coefficient value is 30.3358 which mean that with one year higher in educational level, the total paddy production will increase as many as RM 30.34 per *relong* with the assumption that other variables are constant. The variable *Edu* is significantly affecting the total production of paddy in the study area as the p-value for t-test is 0.09828 which is less than the level of 10%. This is due to the fact that the more a farmer is formally educated, the more the ability to be efficient and thus the more will be the productivity of the person.

Variable *L_Ownership* has a positive relationship with the total production of paddy. The coefficient value is 137.394 which mean that compared to farmers who do not owned the land, the total paddy production of farmers who owned the land is higher by RM 137.39 per *relong* with the assumption that other variables are constant. The variable *Exp* affects the total production of paddy significantly as the p-value for t-test is 0.00076 which is less than the level of 1%. This is probably due to the fact that owned land is more fertile as compared to the rented land and thus, the paddy yield obtained by the farmers is higher. Farmers who work their own land maybe tends to use high quality of fertilizer in order to obtain higher yield.

Variable *F_Size* has a negative relationship with the total production of paddy. The coefficient value is -8.69825 which mean that with the increase one *relong* on size of farm, the farmers' total paddy production will decrease by RM 8.70 per *relong* with the assumption that other variables are constant. The inverse relationship between the total paddy production and farm size is unexpected. This could be due to poor farm management and poor soil fertility resulting from lack of land improvement. The variable *F_Size* affects the total production of paddy significantly as the p-value for t-test is 0.03049 which is less than the level of 5%.

Variable *Subsidy* has a positive relationship with the total production of paddy. The coefficient value is 0.044311 which mean that with the additional RM1 subsidies obtained, the farmers' total paddy production will increase by RM 0.04 per *relong* with the assumption that other variables are constant. The variable *Subsidy* is significantly affecting the total production of paddy since the p-value for t-test is 0.00028 which is less than the level of 1%.

This is so because the higher subsidy the farmers get, the higher the ability of farmers to buy inputs such as paddy seed and fertilizer. Such inputs then could be used to increase their paddy yield.

6. CONCLUSION

The study analyzed the effectiveness of the group farming programs and its contribution to the paddy farmers in two residential areas in the Muda area. From this study, it can be concluded that most of the paddy farmers are male, married, old, have large household size and generally have low level of education. They also have long years of experience in paddy cultivation. Also, most of the respondents cultivate small farm holdings, with the respondents being knowledgeable in aspects of seed selection and sowing as well as fertilizer application. The study also shows that most of the farmers in the study area possess owned house, have access to basic necessities such as water and electricity supply as well as possess home equipments and telecommunication tools.

Besides, the study has shown that farmers are responding appreciably to the projects that promote the cultivation of paddy in the area. The overall average yield (RM1866 per *relong*) for the study area has indicated that the group farming programs are yet to have an appreciable impact on productivity. The result shows that TTP and PLC appear to be important determinants of the total paddy production. The estimated coefficients in the model indicate that all the three projects are positively affect the total paddy production in the area. However, only two projects which are TTP and PLC are significant while PEP is insignificant in affecting the total paddy production. This is probably due to the fact that the implementation of these programs is still at the beginning stage and thus, the yield of the project is still could not be observed.

Besides PEP, TTP and PLC, the socio-economic factors as well as subsidy also influence the farmers' total paddy production. The socio-economic factors such as gender, household size, level of education, years involved in paddy cultivation and land ownership had shown a positive relationship while age, marital status and size of farm had shown a negative relationship to the total paddy production. Even though gender and years involved in paddy cultivation had a positive sign, but, they were not significant to influence the total paddy production. Besides, the factor of farm size was also not significant to influence the total paddy production. On the other hand, the factors of age, marital status, household size, level of education and land ownership were important to influence the total paddy production. Other than that, the factor of subsidy was also positively significant to affect the total production of paddy.

7. POLICY IMPLICATION

Government needs to implement more group farming programs for farmers since production level was found to have a significant positive relationship with TTP and PLC. Group farming programs enables farmers to manage their farm effectively through the improvement of land which leads to the increase in soil fertility and the use of high quality of farming inputs. Besides, it also could change the uneconomic size of land holding to the large scale holding which then will lead to the achievement of scale of economics in the level of production.

Government or any non-governmental organization should encourage more youths to involve in paddy cultivation activity since production level was found to have a significant negative

relationship with age. For example, government could attract them by providing soft loans or production credit so as to enable them to involve in paddy cultivation activity. This is simply because youths would have more strength to work than old people. The younger the age of the person, the more ability to work and thus the more will be the productivity of him.

Also, government needs to provide scheme of early retirement for farmers in Malaysia. Since the productivity level of old farmers is found to be lower as compared to the young farmers, thus it is a need for government to provide a scheme that enables them to retire earlier. The old farmers who have low level of productivity are encouraged to join this scheme while their land is transferred to MADA to be operated. Then, the compensation will be given to them. However, government needs to ensure that the removal of older farmers from the industry would produce benefits that exceed the additional costs incurred.

Nowadays, most of the farmers face with the problem of high production cost and low paddy yield. Since paddy production level was found to have significantly affected by subsidy, thus, government needs to put down an effective framework for ensuring that agricultural input subsidies are enjoyed by the target audience in the distribution of improved seedlings, fertilizer, loans or credits. This is because, by giving them subsidies, they would be able to purchase more yield-increasing inputs such as paddy seed and fertilizer with lower price. Consequently, this will help them to enhance their productivity and invariably increase their farm income.

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A Long-Run Relationship between the Trade and Its Determinants for a Group of Selected the Arab Maghreb Union Countries

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ABSTRACT

The Arab Maghreb Union (AMU) comprising Algeria, Libya, Mauritania, Morocco, and Tunisia have established a framework to enhance regional cooperation on trade facilitation. It is doubtful whether the Arab Maghreb countries achieve the goals of this regional cooperation or not. The objective of this study is to examine a long-run relationship between the trade and its determinants for a group of selected the Arab Maghreb Union Countries. Using a data set consists of a panel observation for the AMU countries for the period of 1989-2009; a panel unit root test was done to investigate the possibility of panel cointegration. Overall, the results are consistent with those found in Pedroni approach in all cases, parameters for the variables are found to be correctly signed and highly significant. In terms of trade openness, the results show that the trade barriers are found to be positively and significantly correlated with openness where their relationships within among the AMU trade intensity ratios show a strong correlation. In other words, the trade barriers are fairly effective for increasing trade.

Keywords: AMU, trade, panel cointegration

1. INTRODUCTION

The Arab Maghreb Union (AMU) comprising Algeria, Libya, Mauritania, Morocco, and Tunisia have established a framework to enhance regional cooperation on issues of common interest, focusing initially on trade facilitation. Over the last decade, the Arab Maghreb Union countries have increased their trade integration into the world economy, including in the context of the Association Agreements between the European Union (EU) and Arab Maghreb countries. However, there is an argumentation, whether the Arab Maghreb countries achieve the goals of this regional cooperation or not. In addition, there were an opposite views that, the Arab Maghreb countries were affected by this regional integration. According to Brenton, Baroncelli and Mahouchel (2006) the Maghreb countries have experienced lacklustre growth rates during the last decade.

There are many issues and challenges ahead that have to be resolved related to the regional

integration. One of the major concerned of this paper is related to the impact of regional integration on trade among the Maghreb countries in terms of intra-trade. This study argues that these are important issues to be addressed since the status quo is not tenable if trade is to fuel higher rates of growth and employment generation in the Maghreb member states. On the one hand, the structure of economies in the Maghreb is not conducive to sustained export growth (Brenton et al., 2006).

It should be noted that the four stages of economic integration specified in the guidelines adopted by the Council of Heads of State of the AMU at its third meeting in Libya in March 1991 were: (1) a free *trade* area by the end of 1992, (2) a customs union by the end of 1995, (3) a common market by the end of 2000, and (4) a monetary union some time thereafter (Mohamed and Bell, 1995). Key issues related to economic integration in the Maghreb and the progress made and benefits so far should be examined. The extent to which the main prerequisites for economic integration are in place are assessed, and the challenges the Union members need to address if the AMU is to make further progress toward achievement of its objectives would be also addressed in this study.

The level of intra-Maghreb trade is lower than that of many of the world's trading blocs. In 2007, intra-Maghreb trade represented less than 2% of the subregion's combined gross domestic product (GDP) and less than 3% of the subregion's total trade. Some of the reasons for this low performance include high barriers to trade, logistical bottlenecks, lack of production base diversification, and political considerations (World Bank, 2010).

Table 1: Trade in the Arab Maghreb Union (% of GDP)

	1990-1999		2000-2008	
	Exports	Imports	Exports	Imports
Algeria	26	24	42	23
Libya	29	25	57	28
Mauritania	37	48	40	68
Morocco	26	31	32	37
Tunisia	43	47	49	52

Source: World Bank, GDF and WDI data, April 2010

Overall exports accounted less than between 57 % to 32 % of GDP and import less than between 67 % to 28 % in the Arab Maghreb Union during the period 2000–2008 (Table 1). This represents a slightly increase from trade levels in the 1990s, with Libya showing the greatest increase. Mauritania and Tunisia are the most open economies in the sub region, with average trade volumes exceeding GDP during 2000–2008.

Al-Atrash and Youssef (2007) found that Maghreb countries traded less with the rest of the world than the model would have predicted. Furthermore, the level of regional trade among Maghreb countries is low compared with other trading blocs. There are some indications, however, that official data do not fully capture trade within the region. This is particularly true for trade between Libya and Tunisia, and between Algeria and Tunisia. Thus as compared with its potential, trade in the Maghreb is low in terms of both intra-regional exchanges the rest of the world.

The purpose of this study is to investigate a long-run relationship between the trade and its determinants for a group of selected AMU countries. This study is divided into five sections. Section 2 critically reviews the literature and theories related to the issue of the study. Section

3 discusses the methods and techniques used in the study. Analyses of data and findings of the study are undertaken in Section 4. Section 5, the conclusion, summarizes the arguments of preceding chapters.

2. LITERATURE REVIEW

This section reviews literature and theories related to the topic of the study. It is meant to be the base for the analytical section of the study. Amiot and Salama (1996) stated that in order to strengthen strategic alliances with European trading and industrial partners, Maghreb firms should rethink the logistics of their distribution strategy in Europe, taking recent changes into account and adjusting their trade practices. In that regard it was pointed out that these firms needed to strengthen interdependency with European partners, develop just-in-time multimodal transport and logistics management, and negotiate maritime and inland freight rates in the context of general transport contracts. Without a competitive transport industry, the Maghreb countries would not truly benefit from reform aimed at increasing the region's share of international trade. A study of barriers to the region's trade, especially with countries of the European Union, identified more than 30 barriers, in four categories: import barriers, exports barriers, infrastructure and equipment, and of intra-Maghreb trade.

Brenton et al., (2006) discussed a trade strategy for the Maghreb countries, with a particular focus on regional initiatives, as trade expansion could generate higher and sustained growth rates, and employment. The analysis was based upon identification of the key internal and external barriers that were constraining integration into regional and global markets and discussed how poor design and weak implementation of trade agreements amongst countries in the region limited their impact. The study observed that Maghreb countries would reap significant benefits from enhancing their integration with regional partners, with the EU and with global markets.

Bahmani-Oskooee and Hegerty (2007) attempted to assess the main trends in modeling and estimating these trade flows at the aggregate, bilateral, and sectoral levels. An argument put forward by the opponents of the floating exchange rates is that such rates introduce uncertainty into the foreign exchange market, which could deter trade flows. However, a theoretical argument is put forward by some to show that uncertainty could also boost trade flows if traders increase their trade volume to offset any decrease in future revenue due to exchange rate volatility. The empirical literature reviewed in this paper supports both views. This study classified the empirical studies into three categories. The first includes studies that used aggregate trade data between one country and the rest of the world. The second category includes studies that used disaggregate data at the bilateral level, i.e. trade flows between two countries. Finally, the third category includes those studies that disaggregated the trade data further by commodities or by sectors between two countries. For each group a table is provided which summarizes each paper by its main features.

Martinez-Zarzoso and Nowak-Lemann (2004) study also helps us to understand the effects of geographic and economic distance. When analyzing potential trade between pairs of countries or pairs of economic blocs engaging in free trade agreements two different types of trade can be distinguished as pointed out by Hirsch and Hashai (2000). According to Hirsch and Hashai geographical distance refers to miles or kilometers between capitals of trading countries. Since local products are cheaper than products transported over long distances, it is expected that geographical distance hinder trade. The second type, economic distance refers to absolute differences in the per capita income of the trading countries. These differences are expected

to play a crucial role in explaining trade between the AMU and other major trading blocs.

3. METHODOLOGY

In order to investigate a long-run relationship between the trade and its determinants for a group of selected AMU countries, we proposed our empirical model as follows:

$$\ln Y_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{jt} + \beta_5 \ln FCR_{ij} + \beta_6 \ln RER_{ij} + \beta_7 \ln Open_{ij} + u_{ijt} \quad (1)$$

where $\ln Y_{ijt}$ is the trade variable between the country i (AMU) and the country j at time t ; $\ln GDP_{it}$ is a measure of income of the country i at time t ; $\ln GDP_{jt}$ is a measure of income of the country j at time t ; $\ln POP_{it}$ and $\ln POP_{jt}$ are local and target populations, respectively at time t ; $\ln FCR_{ij}$ is the target country's foreign currency reserves at time t ; $\ln RER_{ij}$ is the real exchange rate between the two countries at the time t . $\ln Open_{ij}$ is the most basic measure of trade intensity is the so-called "trade openness" that is the ratio of exports plus imports to GDP. β_i ($i = 1, 2, \dots, 7$) are parameters of the equation, and u_{ijt} is a white noise disturbance term. All variables are in logs so the estimated coefficients are interpreted as elasticities.

4. RESULTS

As with standard cointegration tests, it is important to know the stationarity properties of the data to ensure that incorrect inferences are not made. The tests are run on full sample of the five Arab Maghreb Union (AMU) countries, namely Algeria, Libya, Mauritania, Morocco and Tunisia for the period 1989-2009. The results of the panel unit root tests confirmed that the variables are stationary at first difference.

The next step is to test whether the variables are cointegrated using Pedroni's (1999, 2001, and 2004) methodology as described previously for Equation (1). This is to investigate whether on the long-run steady state or cointegration exist among the variables and to confirm what Oh *et al.* (1999) and Coiteux and Olivier (2000) stated that the panel cointegration tests have much higher testing power than conventional cointegration test. Since the variables are found to be integrated in the same order $I(1)$, we continued with the panel cointegration tests proposed by Pedroni (1999, 2001, and 2004). Cointegrations are carried out for constant and constant plus time trend and the summary of the results of cointegrations analyses are presented in Table 2 and Table 3.

At constant level, we found that Algeria indicates 4 out of 7 statistics reject null by hypothesis of no cointegration at 1% and 5% level of significance except for the panel- p , group- t and group- adf which are not significant. Libya indicated that 6 out of 7 statistics reject the null hypothesis of no cointegration at 1% and 5% level of significance except for the group- adf which is not significant. In Morocco and Tunisia, the results are indicated that the null hypothesis was rejected by 3 out of 7 statistics at 1% level of significance. In Mauritania as well as Libya, the results indicated that 6 out of 7 statistics reject the null hypothesis of non cointegration at 1% and 5% level of significance.

Overall, results on the panel cointegration tests among the AMU countries with constant level, however, the independent variables do hold cointegration in the long run for a group of the AMU countries with respect to trade. As indicated by the panel non-parametric (t -statistic)

and parametric (*adf*-statistic) statistics as well as group statistics that are analogous to the IPS-test statistics, the null hypothesis of non cointegration are rejected at 1% and 5% level of significance.

Table 2: Panel cointegration tests for heterogeneous panel - Constant

	Algeria	Libya	Morocco	Mauritania	Tunisia
Panel- v	3.061***	2.617***	3.127***	3.345***	2.242**
Panel- ρ	-1.368	-3.528***	-0.744	-4.082***	-0.508
Panel- t	-3.267***	-2.622**	-4.032***	-2.657**	-3.147***
Panel- <i>adf</i>	-2.501**	-1.965**	0.905	-2.681**	-0.725
Group- ρ	-4.334***	-4.509***	-5.171***	-5.147***	-4.409***
Group- t	-1.050	-2.329**	-0.525	-2.433**	-0.558
Group- <i>adf</i>	-1.136	0.086	0.902	0.935	-1.622

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

In constant plus trend level, we found that Algeria, Libya, and Mauritania indicate that 4 out of 7 statistics reject null by hypothesis of no cointegration at the 1% and 5% level of significance. Morocco indicates that all 7 statistics reject the null hypothesis of no cointegration at 1% and 5% level of significance. In Tunisia, the result is indicating that the null hypothesis is rejected by 5 out of 7 statistics at 1% and 5% level of significance. It is shown that independent variables do hold cointegration in the long run for a group of the AMU countries with respect to trade. However, since most the statistics are in favour of cointegration, and thus, combined with the fact that according to Pedroni (1999) the panel non-parametric (t -statistic) and parametric (*adf*-statistic) statistics are more reliable in constant plus time trend, we conclude that there is a long run cointegration among our variables among the AMU countries.

According to Table 3, we found that most of the panel statistics are more reliable in constant plus time trend compared to the panel statistic in constant. As indicated by the panel non-parametric (t -statistic) and parametric (*adf*-statistic) statistics as well as group statistics that are analogous to the IPS-test statistics, the null hypothesis of non cointegration is rejected at 1% level of significance. These results also imply that taken as a group, the cointegration among the AMU countries does hold over the estimation period.

Table 3: Panel cointegration tests for heterogeneous panel - Constant + Trend

	Algeria	Libya	Morocco	Mauritania	Tunisia
Panel- v	1.606	-0.269	1.985**	0.974	3.501***
Panel- ρ	-1.529	-4.453***	-4.877***	-5.134***	-3.719***
Panel- t	-4.080***	-3.125***	-2.533**	-3.843***	-2.216**
Panel- <i>adf</i>	-1.966**	-3.110***	-3.235***	-3.834***	-1.132
Group- ρ	-1.447	-4.284***	-5.059***	-5.059***	-4.457***
Group- t	-4.563***	-0.562	-1.978**	-1.333	-2.628**
Group- <i>adf</i>	-2.122**	-0.664	-2.104**	-0.085	-1.122

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

4.1 Cointegration Estimation Results - FMOLS

The previous section already confirmed that all variables among the AMU countries are cointegrated. In other words, the long run equilibrium exists among the variables. This section discusses the estimated long-run equation. Following Pedroni (2000 and 2001),

cointegrating explanatory variables for the data is estimated using the Fully Modified OLS (FMOLS) technique.

Table 4, indicates that Libya estimate the coefficient for real gross domestic products of exporter ($\ln GDP_{it}$) is positive (25.59) and statistically significant at the 10% level. The estimate coefficient for local ($\ln POP_{it}$) and target population ($\ln POP_{jt}$) are positive (36.59 and 0.03, respectively) and statistically significant at 1% level. The estimate of target country's foreign currency reserves (FCR_{ij}) is positive (0.09) and statistically significant at 5% level. These results show that real gross domestic products of exporter, local and target population, and target country's foreign currency reserves increase trade flow, which means that there is a long run cointegration between that variables and trade from among the AMU to the Algeria. Table 4 also showed that Libya real gross domestic products of importer (GDP_{jt}), the real exchange rate between the two countries (RER_{ijt}), and trade openness ($Open_{ij}$) are statistically not significant.

Morocco in Table 4 also show that the estimates coefficient for real gross domestic products of exporter ($\ln GDP_{it}$) is positive (9.62) and statistically significant a 5% level. The estimate of coefficient for local ($\ln POP_{it}$) and target population ($\ln POP_{jt}$) are positive (6.65 and 0.01) and statistically significant at 5% and 1% level, respectively. The estimate target country's foreign currency reserves (FCR_{ij}) is positive (1.04) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) are positive (0.24) and statistically significant at 1% level. The estimate of trade openness ($Open_{ij}$) is positive (0.07) and statistically significant at 1% level. These results show that all independent variables except real gross domestic products of importer (GDP_{jt}) have a long run cointegration trade among the AMU and the Algeria.

On the other hand, the estimation of Mauritania and Tunisia coefficient for real gross domestic products of importer (GDP_{jt}) are positive (14.40 and 2.55, respectively) and statistically significant at the 5% level. The estimate coefficient for local ($\ln POP_{it}$) is positive (2.55) and statistically significant at 10% level only in Tunisia. The estimate of coefficient target population ($\ln POP_{jt}$) in Mauritania and Tunisia are positive (0.03) and statistically significant at 1% level. The estimate of target country's foreign currency reserves (FCR_{ij}) are positive (0.01 and 0.09, respectively) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) are positive (0.14 and 0.50, respectively) and statistically significant at 1% level. The estimate of trade openness ($Open_{ij}$) are positive (0.20 and 0.25, respectively) and statistically significant at 1% level. These results show that all independent variables except real gross domestic products of exporter ($\ln GDP_{it}$) and local ($\ln POP_{it}$) only for Mauritania have a long run cointegration trade among the AMU and the Algeria.

Table 4: Algeria - FMOLS (Individual) Results, dependent variable: Trade ($\ln Y_{ijt}$)

	$\ln GDP_{it}$	$\ln GDP_{jt}$	$\ln POP_{it}$	$\ln POP_{jt}$	$\ln FCR_{ij}$	$\ln RER_{ij}$	$\ln Open_{ij}$
Libya	25.59* (1.70)	21.53 (1.37)	36.59*** (6.73)	0.03*** (9.82)	0.09** (2.39)	1.74 (1.30)	0.23 (11.91)
Morocco	9.62** (2.18)	7.16 (1.59)	6.65** (2.70)	0.01*** (5.88)	1.04*** (8.49)	0.24*** (8.45)	0.07*** (4.87)
Mauritania	4.31 (1.01)	14.40** (2.34)	10.61 (1.32)	0.03*** (5.49)	0.01*** (5.35)	0.14*** (9.60)	0.20*** (7.83)
Tunisia	1.17 (0.30)	2.55** (2.11)	2.38* (1.80)	0.03*** (3.67)	0.09*** (6.87)	0.50*** (3.68)	0.25*** (5.99)
Algeria - FMOLS (Group) Results, dependent variable: Trade ($\ln Y_{ijt}$)							
	1.99 (1.18)	0.42 (1.25)	6.85*** (5.41)	0.02*** (6.08)	0.08*** (3.12)	0.29*** (3.78)	0.14*** (6.41)

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

Table 4 shows that relationship between the Algeria and other AMU countries (as individual). Most of the variables reported that tests reject the null hypotheses of non cointegration at 1% and 5% level. While as a Group, real gross domestic products of exporter and importer (GDP_{ij} and GDP_{jt} respectively) are statistically not significant but other variables reported that tests reject the null hypotheses of non cointegration at 1% level.

From Table 5, Algeria estimates coefficient for real gross domestic products of exporter and importer [$\ln GDP_{it}$ and (GDP_{jt})] are positive (8.07 and 0.18, respectively) and statistically significant at 1% and 5% level. The estimate coefficient for local ($\ln POP_{it}$) is positive (0.12) and statistically significant at 1% level. The estimation of the real exchange rate between the two countries (RER_{ijt}), and trade openness ($Open_{ij}$) are positive; 0.55 and 0.20, respectively and statistically significant at 1% and 5% level. These results show that real gross domestic products of exporter and importer, local population, and real exchange rate increase trade flow, which means that there is a long run cointegration between the variables and trade among the AMU and the Libya.

On the other hand, Table 5 also shows that Morocco and Tunisia estimated the coefficient for real gross domestic products of exporter and importer [$\ln GDP_{it}$ and (GDP_{jt})] are positive (2.26 and 0.05 for Morocco and 2.31 and 0.01 for Tunisia, respectively) and statistically significant at the 5% and 1% level. The estimate of coefficient for local population ($\ln POP_{it}$) and target population ($\ln POP_{jt}$) are positive (0.01 and 0.52 for Morocco, 0.05 and 0.19 for Tunisia, respectively) and statistically significant at 1% level. The estimate of target country's foreign currency reserves (FCR_{ij}) is positive (0.12 for Morocco and 0.58 for Tunisia) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) is positive (0.02) and statistically significant at 1% level for Morocco but not statistically significant for Tunisia. The estimate of trade openness ($Open_{ij}$) is positive (0.17 for Morocco and 0.37 for Tunisia, respectively) and statistically significant at 1% level. These results show that all independent variables have a long run cointegration trade among

AMU and Libya. While, Mauritania estimated the coefficient for real gross domestic products of exporter (GDP_{jt}) is positive (0.57) and statistically significant at the 1% level. The estimate of coefficient for local ($lnPOP_{it}$) and target population ($lnPOP_{jt}$) are positive (0.05 and 0.33, respectively) and statistically significant at 1% level. The estimate target for the country's foreign currency reserves (FCR_{ij}) is positive (0.37) and statistically significant at the 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) is positive (0.21) and statistically significant at 1% level. The estimate of trade openness ($Open_{ij}$) is positive (0.05) and statistically significant at 1% level. These results showed that all independent variables have a long run cointegration trade among the AMU and Libya. The relationship between Libya and other AMU countries as shown in Table 5 is an individual. Most of the variables reported that tests reject the null hypotheses of non cointegration at 1% and 5% level. While as a Group, all variables reported that tests reject the null hypotheses of non cointegration at 1% level.

Table 5: Libya - FMOLS (Individual) Results, dependent variable: Trade (lnY_{ijt})

	$lnGDP_{it}$	$lnGDP_{jt}$	$lnPOP_{it}$	$lnPOP_{jt}$	$lnFCR_{ij}$	$lnRER_{ij}$	$lnOpen_{ij}$
Algeria	8.07** (2.09)	0.18*** (5.66)	0.12*** (9.05)	0.51 (0.63)	1.39 (0.28)	0.55*** (5.03)	0.20** (2.00)
Morocco	2.26** (2.24)	0.05*** (8.03)	0.01*** (10.85)	0.52*** (9.32)	0.12*** (7.03)	0.02*** (8.94)	0.17*** (7.85)
Mauritania	0.24 (0.88)	0.57*** (3.83)	0.05*** (7.18)	0.33*** (10.90)	0.37*** (9.25)	0.21*** (5.16)	0.05*** (12.38)
Tunisia	2.31*** (10.95)	0.01*** (9.52)	0.05*** (8.95)	0.19*** (8.18)	0.58*** (13.73)	0.73 (0.85)	0.37*** (7.84)
Libya - FMOLS (Group) Results, dependent variable: Trade (lnY_{ijt})							
	2.57*** (8.24)	0.03*** (8.53)	0.04*** (12.62)	0.14*** (9.74)	0.26*** (9.23)	0.12*** (10.20)	0.14*** (6.40)

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

Table 6 shows the estimate coefficient for real gross domestic products of exporter ($lnGDP_{it}$) are positive (6.00 and 2.09, respectively) and statistically significant at 1% and 5% level for Algeria and Mauritania. But both countries have no statistically significant for real domestic product of importer (GDP_{jt}) and local population ($lnPOP_{it}$). The estimate of coefficient for target population ($lnPOP_{jt}$) are positive (0.01 and 0.11, respectively) and statistically significant at 1% level for both countries. The estimate of target country's foreign currency reserves (FCR_{ij}) are positive (0.07 for Algeria and 0.11 for Mauritania) and statistically significant at the 1% and 5% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) is positive (0.07 for Algeria and 0.46 for Mauritania) and statistically significant at 1% level. The estimate of trade openness ($Open_{ij}$) is positive (0.04 for Algeria and 0.22 for Mauritania) and statistically significant at 1% level. These results show that all independent variables have a long run cointegration to trade between AMU and Morocco.

Libya estimation of the coefficient for real gross domestic products of exporter and importer [$(\ln GDP_{it})$ and (GDP_{jt})] are positive (9.60 and 5.37) and statistically significant at 1% and 5% level, respectively. The estimate of coefficient for local $(\ln POP_{it})$ and target population $(\ln POP_{jt})$ are positive (0.5.64 and 0.01) and statistically significant at 5% and 1% level, respectively. The target country's foreign currency reserves (FCR_{ij}) is statistically not significant but the estimate of the real exchange rate (RER_{ijt}) is positive (0.18) and statistically significant at 1% level. The estimate of trade openness $(Open_{ij})$ is positive (0.36) and statistically significant at 1% level. These results show that most of the independent variables have a long run cointegration trade among the AMU and the Morocco.

On the other hand, Tunisia estimation of coefficient for real gross domestic products of exporter and importer [$(\ln GDP_{it})$ and (GDP_{jt})] are positive (9.54 and 0.57) and statistically significant at 5% level. The estimate coefficient for target population $(\ln POP_{jt})$ is positive (0.02) and statistically significant at 1% level, but we found that the local population $(\ln POP_{it})$ is statistically not significant. The estimate target country's foreign currency reserves (FCR_{ij}) is positive (0.22) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) is positive (0.31) and statistically significant at 1% level. The trade openness $(Open_{ij})$ is statistically not significant. These results show that most independent variables have a long run cointegration to trade from among the AMU and Libya.

The relationship between Morocco and the AMU countries (as individual), most of the variables reported that tests reject the null hypotheses of non cointegration at 1% and 5% level. While as a Group, most variables reported that tests reject the null hypotheses of non cointegration at 1% level.

Table 6: Morocco - FMOLS (Individual) Results, dependent variable: Trade $(\ln Y_{ijt})$

	$\ln GDP_{it}$	$\ln GDP_{jt}$	$\ln POP_{it}$	$\ln POP_{jt}$	$\ln FCR_{ij}$	$\ln RER_{ij}$	$\ln Open_{ij}$
Algeria	6.00** (4.16) *	0.39 (0.46)	1.39 (0.47)	0.01*** (6.29)	0.07*** (3.13)	0.07*** (3.03)	0.04*** (5.58)
Libya	9.60** (3.44) *	5.37** (2.26)	5.64** (2.74)	0.01*** (10.84)	1.26 (1.26)	0.18*** (10.14)	0.36*** (7.06)
Mauritania	2.09** (2.63)	0.85 (0.24)	0.04 (0.82)	0.11*** (5.49)	0.11** (2.51)	0.46*** (5.37)	0.22*** (6.43)
Tunisia	9.54** (2.39)	0.53** (2.91)	0.75 (0.42)	0.02*** (3.94)	0.22*** (8.14)	0.31*** (6.01)	1.32 (0.30)
Morocco - FMOLS (Group) Results, dependent variable: Trade $(\ln Y_{ijt})$							
	3.34* (1.96)	0.08 (1.51)	3.99*** (3.50)	0.02*** (6.49)	0.12** (2.80)	0.20*** (3.21)	0.34*** (4.33)

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

Libya and Tunisia in Table 7, estimate the coefficient for real gross domestic products of exporter and importer [$(\ln GDP_{it})$ and (GDP_{jt})] are positive (2.23 and 2.29 for Libya and 0.05 and 0.01 for Tunisia, respectively) and statistically significant at 1% and 5% level. The estimate of coefficient for local $(\ln POP_{it})$ and target population $(\ln POP_{jt})$ are positive (0.01 and 0.54 for Libya and, 0.20 and 0.61 for Tunisia, respectively) and statistically significant at 1% level. The estimate target country's foreign currency reserves (FCR_{ij}) are positive; 0.12 for Libya and 0.61 for Tunisia and statistically significant at 1% level for both countries. The estimate of the real exchange rate between the two countries (RER_{ijt}) are positive; 0.03 for Libya and 0.08 for Tunisia and statistically significant at 1% level for that both countries. The estimate of trade openness $(Open_{ij})$ are positive for Libya and Tunisia (0.03 and 0.58, respectively) and statistically significant at 1% level. These results show that all independent variables have a long run cointegration trade among the AMU and Mauritania.

Table 7: Mauritania - FMOLS (Individual) Results, dependent variable: Trade $(\ln Y_{ijt})$

	$\ln GDP_{it}$	$\ln GDP_{jt}$	$\ln POP_{it}$	$\ln POP_{jt}$	$\ln FCR_{ij}$	$\ln RER_{ijt}$	$\ln Open_{ij}$
Algeria	4.37** * (5.96)	0.08*** (3.89)	0.05*** (6.26)	0.09*** (8.77)	0.63* (1.72)	4.97*** (2.80)	0.18 (1.55)
Libya	2.23** (2.21)	0.05*** (8.05)	0.01*** (4.85)	0.54*** (8.61)	0.12*** (7.14)	0.03*** (9.19)	0.03*** (3.96)
Morocco	0.10 (1.21)	0.61*** (3.95)	0.10*** (4.06)	0.35** (2.67)	0.38** (2.29)	0.13*** (3.31)	0.15*** (6.66)
Tunisia	.29* ** (10.35)	0.01*** (5.16)	0.04*** (9.61)	0.20*** (7.35)	0.61*** (7.59)	0.08*** (4.61)	0.58*** (4.38)
Mauritania - FMOLS (Group) Results, dependent variable: Trade $(\ln Y_{ijt})$							
	2.25** * (9.78)	0.02*** (9.71)	0.04*** (4.67)	0.18*** (3.69)	0.21*** (3.05)	0.27*** (4.12)	0.03*** (4.12)

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

Table 7, shows that Algeria and Morocco estimate the coefficient for real gross domestic products of exporter and importer [$(\ln GDP_{it})$ and (GDP_{jt})] are positive (4.37 and 0.08, respectively) and statistically significant at 5% and 1% level for Algeria. But we found that only the real gross domestic product of importer (GDP_{jt}) has impact on trade in Morocco, means that the estimate the coefficient for real gross domestic products of importer (GDP_{jt}) is positive (0.61) and statistically significant at 1% level. The estimate of coefficient for local $(\ln POP_{it})$ and target population $(\ln POP_{jt})$ are positive (0.05 and 0.10 for Algeria and 0.09 and 0.35 for Morocco, respectively) and statistically significant at 1% level. The estimate

target country's foreign currency reserves (FCR_{ij}) are positive (0.63 for Algeria and 0.38 for Morocco, respectively) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) are positive (4.97 for Algeria and 0.13 for Morocco) and statistically significant at 5% and 1% level. The estimate of trade openness ($Open_{ij}$) is positive (0.15) and statistically significant at 1% level for Morocco only. These results show that most independent variables have a long run cointegration trade among the AMU and Mauritania.

The relationship between Libya and among other AMU countries (as individual), most of the variables reported that tests reject the null hypotheses of non cointegration at 1% and 5% level. While as a Group, all variables reported that tests reject the null hypotheses of non cointegration at 1% level.

Table 8: Tunisia - FMOLS (Individual) Results, dependent variable: Trade (lnY_{ijt})

	$lnGDP_{it}$	$lnGDP_{jt}$	$lnPOP_{it}$	$lnPOP_{jt}$	$lnFCR_{ij}$	$lnRER_{ij}$	$lnOpen_{ij}$
Algeria	4.37** * (5.96)	0.08*** (3.89)	0.05*** (6.26)	0.09*** (8.77)	0.63* (1.72)	4.97** (2.80)	0.18** (11.55)
Libya	2.23** (2.21)	0.05*** (8.05)	0.01*** (4.85)	0.54*** (8.61)	0.12*** (7.14)	0.03*** (9.19)	0.80 (0.42)
Morocco	0.10 (1.21)	0.61*** (3.95)	0.10*** (4.06)	0.35** (2.67)	0.38** (2.29)	0.13*** (3.31)	0.01*** (6.76)
Mauritania	2.29** * (10.35)	0.01*** (4.16)	0.04*** (9.61)	0.20*** (7.35)	0.61*** (7.59)	0.08 (4.61)	0.43*** (6.07)
Tunisia - FMOLS (Group) Results, dependent variable: Trade (lnY_{ijt})							
	2.25** * (9.78)	0.02*** (8.71)	0.04*** (4.67)	0.18*** (3.69)	0.21*** (3.05)	0.27*** (4.12)	0.01** (2.61)

Notes: ***, **, * indicates rejection of the null hypothesis of no-cointegration at 1%, 5%, and 10% level of significance.

Table 8 explained the relationship between Tunisia and others AMU countries. Table 8 also estimate Algeria coefficient for real gross domestic products of exporter and importer [$(lnGDP_{it})$ and (GDP_{jt})] are positive (4.37 and 0.08, respectively) and statistically significant at the 1% level. The estimate of coefficient for local ($lnPOP_{it}$) and target population ($lnPOP_{jt}$) are positive (0.05 and 0.09, respectively) and statistically significant at 1% level. The estimate of target country's foreign currency reserves (FCR_{ij}) is positive; 0.63 and statistically significant at 10% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) is positive; 4.97 and statistically significant at 5% level. The estimate of trade openness ($Open_{ij}$) is positive (0.18) and statistically significant at 5% level. These results show that all independent variables have a long run cointegration trade among AMU and Tunisia.

Estimated coefficient for real gross domestic products of exporter and importer [$(\ln GDP_{it})$ and (GDP_{jt})] are positive (2.23 and 0.05 for Libya, 2.29 and 0.01 for Mauritania, and 0.61 for Morocco in real gross product of importer (GDP_{jt})) and statistically significant at 5% and 1% level. The estimate coefficient for local $(\ln POP_{it})$ and target population $(\ln POP_{jt})$ are positive (0.01 and 0.54 for Libya, 0.10 and 0.35 for Morocco, and 0.04 and 0.20 for Mauritania) and statistically significant at 1% and 5% level. The estimate target country's foreign currency reserves (FCR_{ij}) are positive (0.12 for Libya, 0.38 for Morocco, and 0.61 for Mauritania) and statistically significant at 1% level. The estimate of the real exchange rate between the two countries (RER_{ijt}) are positive (0.03 for Libya and 0.13 for Morocco) and statistically significant at 1% level. The estimate of trade openness $(Open_{ij})$ is positive (0.01 for Morocco and 0.01 for Mauritania) and statistically significant at 1% level for Morocco only. These results show that most of independent variables have a long run cointegration trade among the AMU and Tunisia.

The relationship between Tunisia and other AMU countries (as individual), most of the variables reported that tests reject the null hypotheses of non cointegration at 1% and 5% level. While as a Group, most of the variables reported that tests reject the null hypotheses of non cointegration at 5% and 1% level.

5. CONCLUSION

Our study attempts to identify the important of intra-trade among AMU countries namely Algeria, Libya, Mauritania, Morocco, and Tunisia. We estimate our equations using econometric approached. We found that there are integration order of the series are consistently $I(1)$. We also found that all the variables are cointegrated in the model. Thereafter, the long run equation is extracted from the Fully Modified OLS (FMOLS) analysis (Pedroni; 1996, 2000, 2001). We found a positive and statistically significant impact of trade trade and GDP, population, distance, foreign currency reserves (FOC) and real exchange rate (RER) and trade openness among AMU countries.

The intra-trade among AMU is below the expected level, this study clearly identifies that GDP, population, distance, Foreign currency reserve (FOC), and Real Exchange Rate (RER) measures promote trade relationships which look like remove barriers to trade is justified. Importantly, there is evidence that the deviation from the expected level of trade is increasing among AMU especially among Mauritania, Morocco, and Tunisia, further highlighting the need for appropriate policies in population and Real Exchange Rate (RER).

The real exchange rate is best thought of as a facilitating condition as keeping it at competitive levels and can be critical for jump-starting growth. From our study, we found that the real exchange rate gave mix results of significant level. Algeria, Mauritania, and Tunisia have positive and negative impact but not significant into trade among the other AMU countries, while only Libya and Morocco have positive and significant impact into trade. From a policy perspective it is important to consider where resources are most effectively used to promote trade. Furthermore, it is also important to consider the appropriate policy tools as these may well differ between countries.

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The Tobin tax: Welfare and Monetary Policy Analysis**Jong Kook Shin^a, Chetan Subramanian^b**^aQueen's University Belfast^bIndian Institute of Management**ABSTRACT**

We analyze the implications of the so-called Tobin tax or the ad-valorem transaction tax on the foreign exchange trading using a New Keynesian small open economy where rational and noise traders coexist in an incomplete bond market. We derive the utility-based welfare function explicitly using the linear-quadratic approach. Based on this criterion, the optimal monetary policy is obtained. Our analysis reveals that the optimal monetary policy can be pursued independent of the Tobin tax policy. The welfare implications of the Tobin tax are explored under different combinations of monetary policies and shocks. Our numerical analysis considers five types of mean-reverting temporary shocks – shocks in demand, technology, markup, world interest rate and noise trader information. The Tobin tax generally improves the welfare of representative households under the fixed exchange rate regime. On the other hand, the Tobin tax is welfare-reducing if the optimal or inflation targeting policy is pursued. We identify two channels through which the Tobin tax policy can improve the welfare: First, it insulates the domestic economy from the suboptimal boom and bust cycles resulting from temporary shocks. Second, it reduces a wedge in the uncovered interest rate parity by suppressing noise traders' activities.

Technical Efficiency of Thai SMEs: The Application of Data Envelopment Analysis

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ABSTRACT

This study focuses on examining the level of technical efficiency and the efficiency changes in SMEs in Thailand from 2008 to 2010 using Data Envelopment Analysis approach. The sample consists of 1,411 SMEs with completed data are obtained from the Ministry of Commerce's database. The results found that Thai SMEs have quite low technical efficiency score about 20-24 percent during 2008 to 2010. In addition, SMEs in manufacturing sector is the most efficient SMEs with the efficiency score of 63 percent 54.60 percent and 47.50 percent in 2008, 2009 and 2010, respectively. Furthermore, we also found that small scale SMEs is the most efficient SMEs compare to medium and large scale SMEs. Small SMEs have the efficiency score of 54.30 percent 64.80 percent and 59.30 percent in 2008, 2009 and 2010, respectively. Using Malmquist Productivity Index for investigating the efficiency changes, the study found that, from 2008 to 2010, the technical efficiency of SMEs have decreased. However, Thai SMEs have invested more in high technology to support the business operation, consequently, the Total Factor Productivity of SMEs from 2008 to 2010 have improved. The results imply that Thai SMEs have plenty of room for improving their efficiency. These SMEs could have the same level of output by decreasing approximately 80 percent of the input used at the current level. The entrepreneurs and policy makers could adopt the research results for benchmarking the performance of SMEs in Thailand and improving their efficiency level.

Keywords-technical efficiency, efficiency change, Data Envelopment Analysis, SMEs

1. INTRODUCTION

Small and medium enterprises (SMEs) play an important role in a nation's economy. They make substantial contributions to employment and comprise the majority of businesses in the nation (Bushong, 1995; Burns and Dewhurst, 1996; Holmes et al., 2003). The recent literature emphasizes the role SMEs play in nurturing entrepreneurship and generating new products and processes (Taymaz, 2005).

In developing countries, small-scale businesses are the most important source of new

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employment opportunities. Governments throughout the world attempt to promote economic progress by focusing on small-scale enterprises (Harper and Soon, 1979). National governments and international lending institutions have supported SMEs in several developing countries with credit and technical assistance for decades (Mini and Rodriguez, 2000).

The rationale behind supporting SMEs is that the development of SMEs could link to achieve higher employment, income equality and a more geographically dispersed distribution of wealth. However, does achieving those goals through SME support come at a hidden price due to the possibility that SMEs are less technically efficient than larger firms? (Mini and Rodriguez, 2000). As a result, the efficiency of SMEs is central to debates about the role of small-scale industries in economic development.

Although various SME-support programs have been adopted all around the world, the empirical evidence strongly indicates that there are substantial productivity differences between small and large enterprises independent of sector- and country-specific factors. The productivity differential narrows down by economic development but it does not vanish completely even in the developed countries (Snodgrass and Biggs, 1996).

An efficient SME uses inputs at optimum levels and hence, reduce the usage of unnecessary inputs to attain the level of a given output or the SME would maximize output at a given input level. Hence, revenue and profits would be maximized. Conversely, an inefficient SME will incur unnecessary cost and wastage resulting in low returns on invested capital. Generally, SMEs are poorly managed due to the lack of management skills among owners or managers. They lack awareness of the importance of adopting business best practices and quality management systems, such as financial management and customer focused activities, in order to enhance the firms' productivity and profitability. Inefficiency is a result of using excessive inputs at a given output level or poor output at a given input level. Inefficiency increases cost of production which affects price, sales and revenue. As a result, inefficient SMEs are unable to compete effectively in the market impacting the entire small and medium enterprise (SMEs) sector performance (Radam, Abu and Abdullah, 2008).

Given the fact that SMEs are the dominant source of employment in low- and middle-income countries (Taymaz, 2005) and there exist various SME-support programs have been adopted around the world, therefore, 'Do SMEs use their resources efficiently?' become the important research question especially for developing country. This study focuses on this question by examining the efficiency of SMEs in developing country context, Thailand.

The nature and definitions of SMEs differ among countries, in Thailand, SMEs are classified into three major categories include 1) production sector including agricultural processing, manufacturing and mining, 2) service sector and 3) trading sector consists of wholesale and retail. The definition of SMEs adopted in Thailand based on either the number of employees or the total values of fixed assets depend on the business sector.

According to Office of Small and Medium Enterprises Promotion (2011b), the contribution to GDP by SMEs was 3,746,967 million baht in 2010 or 37.1 percent of the overall GDP with an annual expansion rate of 7.9 percent, an increase from a contraction of 2.4 in 2009. Considering employment by SMEs in 2010, the number of people employed by enterprises of all sizes totaled 13,496,173. Of this number, large enterprises employed 2,988,581 people and SMEs employed 10,507,507 people, or 77.86 percent of overall employment. Small enterprises employed the greatest proportion of all enterprises overall at 66.72 percent as well

as among SMEs at 85.70 percent (Office of Small and Medium Enterprises Promotion, 2011a).

Although the concept of efficiency plays an important role in understanding firm dynamics and the fact that SMEs plays the important role in economic development, there are a limited number of studies focused on SMEs productivity or efficiency in Thailand. Those studies included Wiboonchutikula (2002), Meingchom (2007) and Charoenrat and Harvie (2012a; 2012b). These studies focus on particular sector namely, manufacturing sector, rather than examining SMEs from the whole sector.

The research aims to examine the level of technical efficiency of SMEs in Thailand from all sectors using DEA approach. Specifically, this study examines how efficient Thailand's SMEs used the resources in the production of their output by measuring the technical efficiency and efficiency changes during 2008-2010 using Data Envelopment Analysis (DEA) approach.

To the author's best knowledge, this is the first study attempt to examine the level and efficiency change of Thai SMEs from the whole sectors. By examining technical efficiency of SMEs in Thailand, this study will add the contribution regarding the efficiency measurement of SMEs. Particularly, its usefulness to benchmarking is adapted in this research to provide an analytical, quantitative tool for measuring relative efficiency among SMEs. The entrepreneurs and policy makers could adopt the research results for benchmarking the performance of SMEs in Thailand and improving their efficiency level.

The remainder of this paper is organized as follows. Section 2 presents the literature review about SMEs efficiency studies. Section 3 provides research methodology. Specifically, Data Envelopment Analysis approach, the data and sample are discussed. The empirical results are shown in Section 4. Finally, conclusions and discussion are provided in Section 5.

2. LITERATURE REVIEW

Some studies found that SMEs were more efficient than large firms in some industrial sectors while other studies found them were less efficient overall. These mixed evidences about how efficient SMEs are relative to larger firms are discussed in Little, Mazumdar, & Page (1989); Cortes, Berry, & Ishaq (1987); and Liedholm & Mead (1987).

There exist several studies have been examined the efficiency of SMEs using varieties of techniques in various study context. For example, Philippines (Mini and Rodriguez, 2000), Malaysia (Zahid and Mokhtar, 2007) and (Radam, Abu and Abdullah, 2008) and Iran (Gholami, Moshiri and Lee, 2004)

In Thailand, there are a limited number of studies examining the efficiency of SMEs despite the fact that SMEs has been playing a crucial role in Thai economy in terms of employment and its contribution to National Domestic Product. To the best of knowledge, these studies include Wiboonchutikula (2002), Meingchom (2007) and Charoenrat and Harvie (2012a)

This study will use DEA in measuring the level of technical efficiency of SMEs in Thailand. The DEA approach is chosen because the approach has some advantages include DEA focuses solely on productive efficiency and does not require the explicit specification of the form of the underlying production relationship. Furthermore, the method has proven to be valuable tool for strategic, policy and operational problems (Coelli et al., 2005).

3. RESEARCH METHODOLOGY

This study focuses on examining technical efficiency and efficiency changes of SMEs in Thailand using DEA approach. The following sections will describe the concept of technical efficiency and DEA approach.

The concept and measurement of technical efficiency was made operational by (Farrell, 1957) who discussed in detail the factors that lead to inefficiency in production. Technical efficiency is defined as the ability of a firm to use a minimal amount of inputs to produce an optimum output. Technical efficiency only provides a measure of the efficiency of firms relative to the best-practice firms in the sample (Coelli et al., 2005).

This research uses DEA model in examining technical efficiency of SMEs in Thailand. The DEA approach is based on a mathematical model originally developed by Charnes, Cooper, & Rhodes (1978). Several different mathematical programming DEA models have been proposed in the literature (Charnes et al., 1994). According to Barr, Killgo, Siems, & Zimmel (2002), each of these models seeks to establish how the n DMUs determine the envelopment surface (the best practice efficiency frontier). The geometry of this envelopment surface depends on the specific DEA model adopted. In order to make detailed analysis of inefficient units and take corrective actions to improve their performance, both the constant returns to scale (CRS) assumption and the variable returns to scale (VRS) assumptions are allowed.

This study uses DEA-Solver-LV 1.0 Program for computing efficiency score and the efficiency change analysis. There are 2 models in DEA approach include input-oriented model and output-oriented model. The first model focuses on minimizing the input for the same level of output and the second model focuses on maximizing output given the same amount of input. This study applies input-oriented model because the cost of goods sold and operating expenses which are uses as input variables in this study are the important variables that the management team want to understand. Furthermore, the model would suggest that SMEs will minimize input in order to produce the same level of output.

Two assumptions are relevant to DEA: Constant Return to Scales (CRS) and Constant Return to Scales (VRS) assumption. CRS assumption or CCR model is named after Charnes, Cooper and Rhodes who introduced the model in 1978. The model is appropriate if the production units are operating at optimal scale, otherwise, VRS assumption is more suitable. The VRS assumption or BCC model is named after Banker, Charnes and Cooper who introduced the model in 1984. This study applies VRS assumption because of there is imperfect competitive market in the industry and result that SMEs is not operating at the optimal scale.

DEA approach will produce the efficiency score of each SME which is Decision Making Units (DMUs). SME with efficiency score equal to 1 is the best practice enterprise, then, efficiency score are assigned to other SMEs by comparing them to the best practice enterprises.

For CCR-Input Oriented, the model is as follows.

$$\text{Min} \quad \sum_{i=1}^m \omega_i x_{ik} \quad (1.1)$$

$$\text{Subject to} \quad \sum_{j=1}^n \mu_j y_{rk} = 1 \quad (1.2)$$

$$\sum_{i=1}^m \omega_i x_{ik} - \sum_{j=1}^n \mu_j y_{rk} \leq 0 \quad (1.3)$$

when $\mu_r, \omega_i > 0$

x_{ik} = The amount of input i of DMU k

y_{rk} = The amount of output r of DMU k

μ_r = The weights of output r

ω_i = The weights of input i

r = The number of output; $r = 1, 2, \dots, s$

i = The number of input; $i = 1, 2, \dots, m$

j = The number of DMU; $j = 1, 2, k, \dots, n$ Equation 1.1 focuses on minimizing input given the same level of output of DMU whereas the equation 1.2 and 1.3 are the constraints of the model that limit the maximum of efficiency score is not greater than 1 and the weights of input and output for all DMUs are greater than 0.

In addition, the model could be written as multiplier model of linear programming with Constant Return to Scale assumption using dual problem as following

$$\begin{aligned} \text{Min} \quad & \theta_k \\ \text{Subject to} \quad & -\sum_{i=1}^m x_{ij} \lambda_j + \theta_k x_{ik} \geq 0 \\ & \sum_{r=1}^s y_{rj} \lambda_j \geq y_{rk} \\ & \lambda_j \geq 0 \end{aligned} \quad (2)$$

when

θ_k = Technical efficiency score of DMU k

x_{ik} = The amount of input i of DMU k

y_{rk} = The amount of output r of DMU k

λ_j = The weights of efficiency of DMU j

Banker, Charnes and Cooper (1984) have been modified CCR model by adding the constraint $\sum \lambda_j = 1$ which is Convexity Condition in equation (2) to allow variable the return to scale for DMUs. The model is called VRS or BCC Model, the details as follows:

$$\begin{aligned} \text{Min} \quad & \theta_k \\ \text{Subject to} \quad & -\sum_{i=1}^m x_{ij} \lambda_j + \theta_k x_{ik} \geq 0 \\ & \sum_{r=1}^s y_{rj} \lambda_j \geq y_{rk} \\ & \sum_{j=1}^n \lambda_j = 1 \\ & \lambda_j \geq 0 \end{aligned} \quad (3)$$

4. DATA AND SAMPLE

This study employs sales as output variable and we use cost of goods sold, total assets and operating expenses as input variables. SMEs data are obtained from Ministry of Commerce's database. The financial statements of SMEs from 2008 to 2010 are downloaded from the database. The SMEs which completed data are included in the analysis. After cleaning the data, we got 1,411 SMEs from various business types. The most of SMEs sample is in wholesale, retail trade and repair of motor vehicles at 54 percent or approximately 760 SMEs from 1,411 of SMES sample. Follow by SMEs in manufacturing with the proportion about 19 percent and SMEs in fishing is the least proportion at only 0.21 percent. This study further classifies SMEs used in the study by sector. We found that approximately 54 percent of the SMEs sample is in the trade and maintenance sector. SMEs in manufacturing sector and service sector are about 25 percent and 21 percent, respectively.

The descriptive statistics of input and output used in the study classified by sector are presented in Table 1.

TABLE 1: Descriptive Statistics of input and output used in the study classified by sector

Unit: Baht

Variables	2551			
Manufacturing	Mean	SD	Min	Max
Sales	71,580,667.22	113,959,007.81	180,869.76	774,665,547.64
COGS	64,186,832.97	106,879,564.26	149,692.00	765,260,276.89
TA	43,995,355.08	51,737,282.25	67,709.73	286,671,271.21
OpEx	6,682,410.74	9,518,114.56	5,982.25	70,062,637.00
Trade and maintenance				
Sales	67,687,237.49	114,454,035.15	127,500.00	932,460,586.86
COGS	62,867,750.46	109,337,212.71	40,286.07	845,193,921.50
TA	22,964,366.22	33,321,259.27	81,883.86	237,707,743.29
OpEx	5,263,407.30	9,667,320.16	4,000.00	88,237,689.90
Service				
Sales	26,532,387.78	42,900,559.58	34,838.87	281,626,223.64
COGS	17,598,503.77	30,416,565.38	22,464.00	210,864,803.97
TA	49,736,335.07	81,367,701.37	26,467.89	1,029,437,333.03
OpEx	5,685,378.99	10,113,407.25	25,932.70	80,107,213.66
2552				
Manufacturing	Mean	SD	Min	Max
Sales	72,626,292.97	112,485,433.43	181,264.47	1,042,957,234.97
COGS	64,482,278.27	104,150,712.76	153,516.00	926,175,204.93
TA	35,220,087.99	44,632,203.03	16,500.00	198,038,448.31
OpEx	12,974,586.80	9,731,111.61	3,132.21	67,654,194.00
Trade and maintenance				
Sales	66,481,161.27	123,832,984.79	35,240.00	1,583,853,308.31
COGS	61,013,743.87	117,562,541.33	13,800.00	1,476,055,658.27
TA	23,254,183.74	35,068,181.95	156,614.44	263,101,134.80
OpEx	5,373,076.91	9,757,443.17	8,788.56	103,146,246.29
Service				
Sales	24,621,021.92	38,756,341.58	76,155.00	217,390,657.34
COGS	16,608,900.86	27,949,558.01	47,930.29	183,241,014.22
TA	32,707,925.16	45,478,619.75	80,656.30	294,165,165.10
OpEx	5,426,578.26	9,888,830.16	8,713.83	96,058,737.51
2553				

Manufacturing	Mean	SD	Min	Max
Sales	76,886,503.69	112,796,894.57	155,552.16	764,338,836.00
COGS	68,485,925.14	105,001,012.61	75,189.46	648,336,042.00
TA	37,121,366.43	47,272,779.86	9,500.00	199,643,064.00
OpEx	6,820,000.97	11,975,349.39	5,134.82	142,267,822.63
Trade and maintenance				
Sales	77,000,134.03	143,542,870.86	10,660.00	1,634,438,294.81
COGS	71,028,475.43	136,630,924.93	1,200.00	1,521,515,949.89
TA	24,467,607.96	35,499,121.76	57,005.76	199,723,178.97
OpEx	5,663,164.85	10,345,422.77	22,795.71	108,289,939.60
Service				
Sales	26,455,654.02	40,175,310.83	170,000.00	268,816,483.36
COGS	18,019,280.61	29,063,471.49	55,377.21	185,717,359.61
TA	31,863,503.83	42,986,126.48	71,009.70	199,983,446.73
OpEx	5,956,915.00	12,662,638.01	36,974.15	147,274,171.81

Source: Computed from Ministry of Commerce (2011).

Table 1 shows the descriptive statistics of the data. Sample mean, standard deviations, minimum and maximum are presented. We found that, in 2008-2009, manufacturing sector had the highest sales volume about 72-73 million baht which is higher than trade and maintenance and service sector. In 2010, trade and maintenance sector had the highest sales about 77million baht which is higher than sales in manufacturing and service sector. Focusing on service sector, the volume of sales in the sector is lowest compare to other sectors. The sales figure is approximately 24-27 billion baht in 2008-2010.

Considering cost of goods sold (COGS) variable, we also found the same pattern as sales variable. Specifically, in 2008 and 2009, COGS of manufacturing sector is about 64 million baht which is higher than trade and maintenance and service sector. In 2010, trade and maintenance sector had highest COGS at 71 billion baht. Furthermore, we found that service sector had lowest COGS about 16-18 million baht compare to other sectors.

For assets item, the results show that, in 2008, the service sector had the highest assets approximately 50 million baht whereas, in 2009 -2010, manufacturing sector had the highest assets of 35 - 37 million baht.

In addition, manufacturing sector had the highest operating expenses in 2008-2010. Specifically, in 2008 and 2010, the operating expenses were about 7 million baht while in 2010 the expenses were around 13 million baht.

5. EMPIRICAL RESULTS

The data envelopment analysis is used to examine the level of relative efficiency of SMEs in Thailand and to measure the efficiency changes of SMEs in Thailand during 2008-2010. The empirical results are demonstrated in Table 2 and 3, respectively.

TABLE 2: Technical efficiency of SMEs from 2008-2010

Unit: Percent except 'n'

Categories	n	Technical Efficiency (VRS)			Note
		2008	2009	2010	
Overall	1,411	20.10	23.90	21.70	
Business Type					
A	16	88.90	91.30	96.70	Agriculture, hunting, forestry
B	3	100.00	100.00	100.00	Fishing
C	15	84.60	91.50	86.20	Mining and quarrying
D	264	67.00	58.40	51.40	Manufacturing
E	10	94.00	94.00	93.30	Electricity, gas, and water supply
F	47	83.80	65.40	69.20	Construction
G	760	31.30	33.00	28.10	Wholesale, retail trade, repair of motor vehicles
H	124	57.20	41.50	46.30	Hotels and restaurants
I	17	89.50	86.10	88.20	Transport and storage
J	7	79.90	92.00	87.00	Financial intermediation
K	88	37.80	58.50	52.50	Real estate activities
M	11	89.50	87.90	89.70	Education
N	16	81.20	81.90	91.10	Health and social work
O	33	75.00	87.40	65.10	Other community, social and personal service activities
Business Sector					
<i>Manufacturing</i>	354	63.00	54.60	47.50	
<i>Trade and maintenance</i>	760	31.30	33.00	28.10	
<i>Service</i>	297	26.90	36.90	36.40	
Region					
<i>West</i>	139	49.60	47.70	41.20	
<i>East</i>	186	58.90	50.50	57.30	
<i>South</i>	321	41.90	40.20	37.50	
<i>North</i>	197	25.70	51.80	51.90	
<i>North eastern</i>	214	26.40	35.70	41.10	
<i>Central</i>	354	43.90	54.20	35.50	
Size					
<i>S</i>	85	54.30	64.80	59.30	Small Scale
<i>M</i>	299	39.70	39.30	40.50	Medium Scale
<i>L</i>	1027	18.80	29.60	28.10	Large Scale

Source: Author's calculation.

According to Table 2, the empirical results show that Thai SMEs had quite low technical efficiency level in 2008-2010. The average technical efficiency score is approximately 20 percent which means Thai SMEs has plenty of room for improving their technical efficiency. In other words, an average Thai SMEs could have used 80 percent fewer input (which is measured by COGS, total assets and operating expenses) to produce the same amount of output(which is measured by sales).

In 2008-2010, SMEs had the low technical efficiency score which is only about 20 percent 24 percent and 22 percent, respectively. The results imply that there is the chance for Thai inefficiency SMEs for improving the efficiency to the same level of the frontier SMEs by reducing input level at about 76-80 percent.

Comparing technical efficiency score by business type, we found that in, 2008-2010, SMEs in Fishing business had full efficiency with the technical efficiency score equal to 1. The results imply that these SMEs operate at most productive scale size. Furthermore, we found

that, in 2008-2009, the technical efficiency score of SMEs in electricity, gas and water supply rank in the second place with the score about 96.7 percent in both years.

Focusing on business sector, the empirical results point that the manufacturing sector is the most efficiency SMEs with the highest efficiency score 63 percent 54.6 percent and 47.5 percent from 2008 to 2010, respectively.

In addition, we found that SMEs in different regions had different efficiency score. In 2008 and 2010, SMEs in east region had the highest technical efficiency score with 60 percent while SMEs in central region is the highest efficient SMEs in 2009. The efficiency score of central SMEs is approximately 54.2 percent in 2009. The second rank is SMEs in east region which had the score about 50.5 percent. The reasons for SMEs in east region is relatively high efficient organization could be the excellent location that provide the convenience of shipping.

This research further classify SMEs by size include small (S) medium (M) and large (L) scale follow the S M L definition of Department of Business Development, Ministry of Commerce. The detail of the definition is shown as follows. The SME is classified as small scale if total assets of the SME is less than or equal to 1 million baht. If the total assets is greater than 1 million baht but less than or equal to 5 million baht then that SME is classified as medium scale. Finally, if SME's total asset is greater than 5 million baht then it is classified as large scale.

Consequently, we apply DEA to SMEs data classified by SML scales. The results show that small SMEs had the highest technical efficiency score compare to medium and large SMEs. Specifically, in 2008-2010, the efficiency scores of small SMEs are 54-65 percent while medium and large SMEs had lower scores, respectively. The possible explanation for this finding could be small SMEs tend to have flexible organization structure compare to medium and large SMEs, therefore, the small SMEs could have quick and efficient coordination within the organization.

The second objective of this research is to measure the efficiency changes of SMEs during 2008-2010. The empirical results are demonstrated in Table 3.

TABLE 3: Efficiency Change of SMEs from 2008-2010

Categories	n	Technical efficiency change	Technological change	Total factor productivity (TFP) change	Note
Overall	1,411	0.845	1.658	1.401	
Business Type					
A	16	1.002	1.071	1.073	Agriculture, hunting, forestry
B	3	0.993	0.984	0.977	Fishing
C	15	1.116	0.873	0.974	Mining and quarrying
D	264	0.728	1.450	1.056	Manufacturing
E	10	0.995	0.907	0.902	Electricity, gas, and water supply
F	47	0.680	0.617	0.420	Construction
G	760	1.025	1.346	1.380	Wholesale, retail trade, repair of motor vehicles
H	124	0.619	1.553	0.961	Hotels and restaurants
I	17	1.225	0.884	1.083	Transport and storage
J	7	0.920	7.588	6.981	Financial intermediation
K	88	2.251	2.431	5.472	Real estate activities

Categories	n	Technical efficiency change	Technological change	Total factor productivity (TFP) change	Note
M	11	0.931	1.115	1.038	Education
N	16	1.234	1.170	1.444	Health and social work
O	33	0.845	1.248	1.055	Other community, social and personal service activities
Business Sector					
<i>Manufacturing</i>	354	0.684	1.760	1.204	
<i>Trade and maintenance</i>	760	1.025	1.254	1.285	
<i>Service</i>	297	1.232	1.312	1.616	
Region					
<i>West</i>	139	0.418	0.884	0.370	
<i>East</i>	186	1.252	2.102	2.632	
<i>South</i>	321	1.160	1.257	1.458	
<i>North</i>	197	2.752	2.005	5.518	
<i>North eastern</i>	214	1.251	1.340	1.676	
<i>Central</i>	354	0.682	2.543	1.734	
Size					
<i>S</i>	85	1.006	1.207	1.214	Small Scale
<i>M</i>	299	1.049	1.312	1.376	Medium Scale
<i>L</i>	1027	1.225	1.509	1.849	Large Scale

Source: Author's calculation.

The efficiency changes are reported in Table 3 using Malmquist Productivity Index. The table shows efficiency changes in 3 categories include 1) Technical efficiency change 2) Technological change and 3) Total Factor Productivity (TFP) change. If the figure of changes is greater than 1 then the changes have been in the better way otherwise the SMEs have not changes in the better way. If the figure equal to 1 that means there is no changes in efficiency.

As shown in the table, SMEs in overall have lower technical efficient level while those have higher technological change and TFP change level in 2010 compare to 2008. The results imply that although Thai SMEs have lower technical efficient level but the SMEs had the better technology adaptation in operating the business which is lead to better overall TFP changes.

Considering the efficiency changes of SMEs by business type, we found that SMEs in financial intermediation business have the highest score of technological and TFP changes. The possible reason could be SMEs in this business type for example the securities broker often seek to use the high technology in business transaction for providing the customer's convenience and for competing in the financial services business which need real time transactions. However, the SMEs in this business type had lower technical efficiency level.

In addition, the results point that the efficiency changes of SMEs in various business sectors are different. We found that SMEs in manufacturing sector have the highest technical efficiency changes and TFP changes level. This finding implies that SMEs in manufacturing have used the modern technology equipments for supporting the production. However, these SMEs had lower technical efficiency level while the technical efficiency changes of SMEs in trade and maintenance and service sector are greater than 1.

Classifying SMEs by sector, we found that SMEs in all regions except SMEs in west and

central regions had better technical efficiency changes level. Specifically, SMEs in north region had the highest technical efficiency changes. Furthermore, SMEs in central region had the highest technical efficiency changes and TFP changes level. The second rank is SMEs in east region. In conclusion, the results are consistent with Table 2.

Furthermore, the empirical results reveal that SMEs in different scale include small, medium and large scale all have the better technical efficiency changes and technological changes. These results lead SMEs to have a better TFP changes.

6. DISCUSSION AND CONCLUSIONS

This study aims to investigate the technical efficiency level and the efficiency changes of Thai SMEs using Data Envelopment Analysis (DEA) approach. The sample consists of 1,411 SMEs from various sectors: manufacturing, trade and maintenance and service sector. The data from financial statements of SMEs during 2008-2010 are obtained from Ministry of Commerce database. The output measured by sales while input variables include COGS, total assets and operating expenses.

By applying DEA input oriented model, we conclude that Thai SMEs had low technical efficiency score at only 20-24 percent during 2008-2010. The empirical results reveal that Thai SMEs could reduce the resources usages which are Cost of Goods Sold, total assets and operating expenses at about 80 percent in order to produce at the same level of output. In addition, by using Malmquist Productivity Index, we found that during 2008-2010, Thai SMEs had lower technical efficiency changes level. However, these SMEs had higher technological changes level, therefore, the TFP changes level had improved.

This study uses quantitative data only in investigating the efficiency level and changes. Further study which considering qualitative data would make significant improvement. For example, the study that makes SMEs site visit and conduct dept-interviews in order to gathering qualitative data e.g. management's ability, organization's culture, employee's attitude etc. would add value to the study. Then, ones could explore the relationship between those qualitative data with the efficiency score. The study that combines both quantitative and qualitative data in explore the efficiency level of SMEs would make substantial contributions.

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Marginal Intra-Industry Trade and Labor Costs: The Smooth Adjustment Hypothesis (SAH): The Thailand Experience

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ABSTRACT

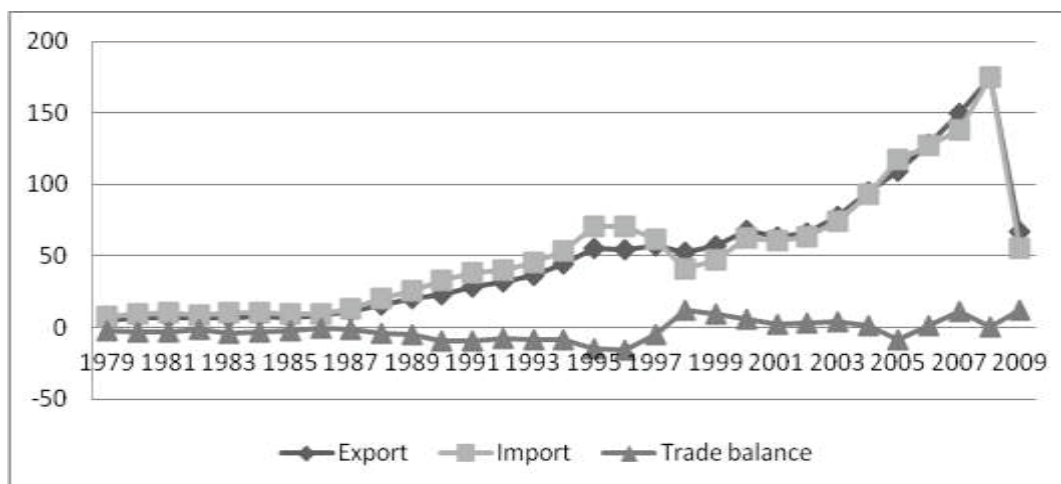
Thailand's international trade, exports in particular, expanded considerably after the major policy changes in 1990. According to this expansion, there was also a significant increase in intra-industry trade even though the major characteristic of Thailand trade is still inter-industry. However, intra-industry trade is hypothesized to reduce adjustment costs due to trade expansion and changes in trade compared to inter-industry trade. The main purpose of this paper is to examine the effects of increased Intra-Industry Trade (IIT) on the labor market adjustment cost, in view of the changes in Thailand's pattern of trade over the post-1990 period. The study is focused on the hypothesis that Intra-Industry Trade (IIT) expansion entails lower factor adjustment costs (Smooth Adjustment Hypothesis -SAH). A dynamic panel data approach is employed. The results suggest a negative correlation between changes in employment and Marginal Intra-Industry Trade (MIIT) and confirmation of the SAH. Given the increase in IIT as a proportion of Thailand's overall trade during the period under review, the adjustment in labor markets in the form of reduced employment from trade liberalization at that time is likely to have been less than would have otherwise been expected.

Keywords: Marginal Intra-Industry Trade (MIIT), Smooth Adjustment Hypothesis (SAH), Thailand industry, Dynamic Panel Data (GMM-System)

1. INTRODUCTION

At present the pattern of international trade has changed over time due to globalization. This change has been driven by the transformation of international trade from traditional trade to more free trade. Trade liberalization is lower if the nature of trade expansion is intra-industry trade (IIT) rather than inter-industry trade. These changes will reshape the pattern of trade and reallocation of resources in the country and in the world. Firms and industries in the country need to reshape their business, especially to reshape the production cost depending on a different market supply and demand.

The statistics from the Bank of Thailand indicated that the volume of total trade (exports plus imports) had increased over time since 1979. International trade had slightly increased during 1979-1987. A trade deficit had occurred between 1987-1998. In contrast, a trade surplus had existed between 1997-2007 (see Figure 1).



Source: Bank of Thailand

Figure 1: Export and Import Value of Thailand in 1979-2009

The major international trade partners for Thailand are the ASEAN countries members, the European (EU) countries, Japan, the United States of America, and China. The volume of Thailand's exports exceeds imports from other countries except Japan, Taiwan and Korea (see Figure 2).

Table 1 indicates that Thailand's international trade has been dominated by the United States and Japan for many decades. However trade with these countries has fallen from nearly 34.6 per cent of Thailand's trade in 1995 to 20.79 per cent in 2010. The trade with ASEAN countries has been relatively stable, increasing from 21.73 per cent in 1995 and 22.7 per cent in 2010. Trade within the ASEAN Economic Community (AEC) has constituted nearly 22 percent of both Thailand exports and imports. Among the country groups, therefore, the AEC with its geographical proximity and the level of economic development has been the most important group.

The share of Thailand's exports and imports with other groups namely EU (27 countries), NAFTA and the Middle East countries has been decreasing over time. As well, Thailand's share of exports and imports with countries such as the USA and Japan have been important, although they have diminished since 1995. However, the share of Thailand imports with the ASEAN has been striking over the last a couple of years.

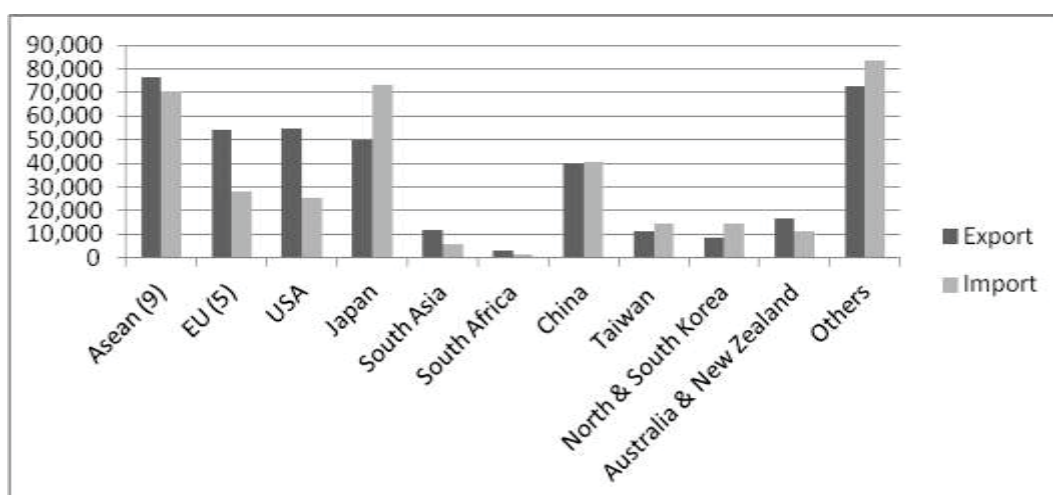


Figure 2: Export and Import of Thailand with other countries, 2010

Table 1: Thailand's Trade by Selected Export Destinations: (FoB : % Total Export)

Region/countries	1995	2000	2005	2006	2007	2008	2009	2010
NAFTA	19.01	22.98	16.68	16.44	14.06	12.71	12.23	11.57
EU (27)	16.51	16.31	13.61	13.88	14.10	13.16	11.91	11.17
ASEAN	21.73	19.34	21.99	20.83	21.31	22.59	21.32	22.70
Middle East	4.50	3.03	4.03	4.41	4.86	5.34	5.74	4.93
USA	17.83	21.31	15.32	14.99	12.62	11.40	10.93	10.34
Japan	16.79	14.74	13.60	12.63	11.78	11.30	10.32	10.45
Hong Kong	5.18	5.04	5.56	5.52	5.65	5.65	6.22	6.72
China	2.91	4.07	8.26	9.04	9.65	9.11	10.58	10.99
Taiwan	2.40	3.50	2.45	2.59	2.16	1.52	1.48	1.65
South Korea	1.42	1.83	2.04	2.06	1.94	2.06	1.85	1.85
others	5.45	3.96	5.13	5.38	6.06	6.67	6.47	6.63
Total Export	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Bank of Thailand

2. LITERATURE REVIEW

2.1 Trade Patterns in Thailand

ASEAN (9 countries) and the South Asia countries receive a high proportion of Thailand's exports, accounting for around 37 per cent of total exports. The European countries (5 countries) and the USA each have 14 per cent of Thailand's exports. Similarly, Korea, Japan and China each account for more than 10 per cent of Thailand's exports (see Figure 3).

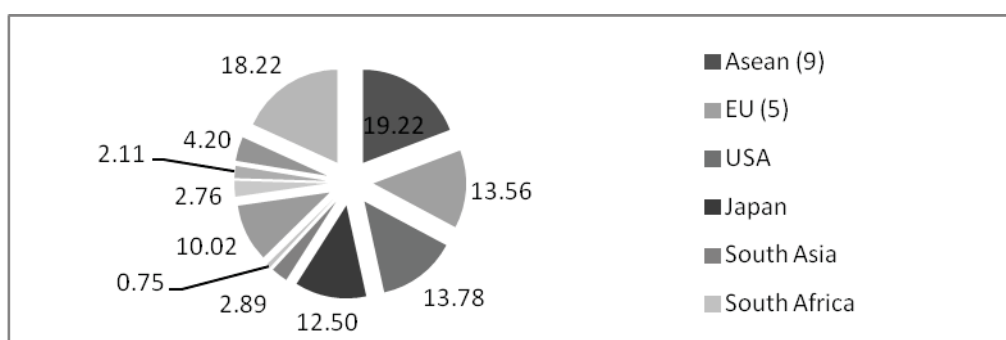


Figure 3: Export of Thailand with other countries, 2010

Figure 4 shows Thailand imports from other countries. More than 70 percent of Thailand's imports come from South Asia, Japan, ASEAN (9) and China.

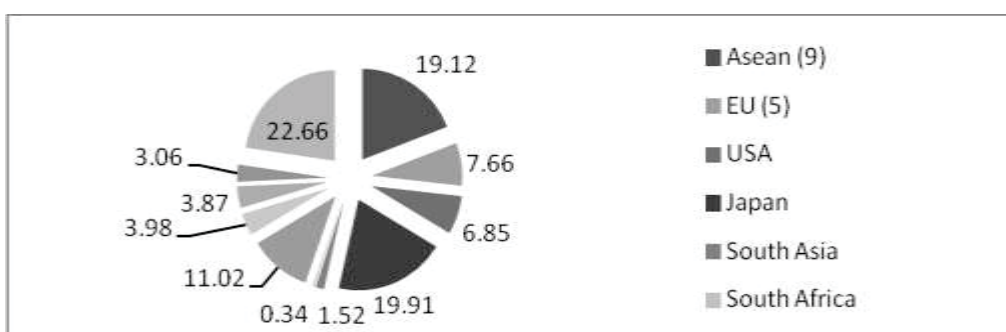


Figure 4: Import of Thailand with other countries, 2010

Therefore, the pattern of trade expansion for Thailand has depended on the volume of total trade (exports plus imports). The study of Chemsripong, S. (2004) and Chemsripong, S. et.al (2009) indicated that Thailand's pattern of trade measured by the G-L index has recorded an increase in intra-industry trade (IIT) (Glubel & Llyold: 1975). The average IIT of all products in 96 items for Thailand in 2001 was 46.69 percent. The expansion of IIT increased to 53.14 in 2010. The reshaping of the labor market is lower if trade expansion is intra-industry trade (IIT) rather than inter-industry trade in nature. This is because labor can more easily mobilize to the same industry than to a different industry. This can influence the price level in the market. In fact, factor endowments e.g. labor can't freely mobilize in economy. So, IIT can measure only the level of employment to estimate the trade concentration of the adaptation pressure of trade patterns from trade expansion.

2.2 Theoretical Basis and Empirical Studies

The first scholar who paid attention to the reshaping of international trade was Balassa (1966). Under trade liberalization, Balassa (1966) criticized the level of international trade pattern depend on the change of intra-industry trade or inter-industry trade. The IIT entails lower costs of factor market adjustment than inter-industry trade. Adjustment costs arise from temporary inefficiencies when market fails to clear instantaneously in the change of demand and supply conditions. The most important adjustment costs incurred through job search, re-location and re-training. Later, Glubel & Llyold (1975) invented the index measure of intra-industry trade, the so called G-L index.

Hamilton and Kniest (1991) and Menon and Dixon (1997) argue that the G-L index proposed by Glubel & Llyold is a static measure of the pattern of trade at a point of time. The changes of the G-L index over time do not adequately reflect the changes in trade partners. Their measure did not eliminate the scale effect. In other words, their index did not allow the comparison between industries of different size. This problem was resolved by Marginal Intra-Industry Trade (MIIT) (Hamilton and Kniest, 1991; Menon and Dixon, 1997).

The study of Hamilton and Kniest, (1991), Greenaway et.al; (1994) and Brulhart and Elliott (2002) found that reducing cost adjustments involved with free trade which depend on the pattern of trade expansion being dominated by IIT rather than inter-industry trade (Hamilton and Kniest, 1991; Greenaway et.al; 1994; Brulhart and Elliott, 2002). The cost of adjustment depends on the response of the change of demand and supply faster than the change of market adjustment in the context of changing trade environment especially in labor market which increased unemployment rate from the impact of price limited and switching costs job search relocation retraining (Ferto and Soos, 2010). Therefore, increased in IIT leads to reallocation in the same industry, while increased in inter-industry has the impact of reallocation of resources between industries.

Later Brulhart (1994) has developed the concept of changing the pattern of trade in industry lead to industry adjustment. He argued that increasing export in industry with increased import will not input mobility between the same industry. The expectation of cost adjustment will lower import differentiate labor mobility

Then Brulhart, (2000) indicated that the correlation of IIT and free trade under the Smooth Adjustment Hypothesis (SAH) meant that an increasing proportion IIT will lead to lower cost adjustments of inputs, especially in the labor market (Brulhart, 2000). So that trade adjustments in the form of IIT will lead to labor movements within industries more than across industries. Although today the measurement of the correlation of IIT and inter-industry trade will have different impacts on adjustment by using difference techniques.

Lovely and Nelson (2000) and Bruhart and Elliot (2002) expand the theory by explaining that according to the Smooth Adjustment Hypothesis (SAH), when IIT expands in nature there will be a reallocation of resources. However, a review of the literature indicated that the impact of resource reallocation depends on the empirical model of each country.

While this research has broadly been interested in researching the costs of adjustment from changing patterns of international trade, none of research studies to date has used the theory in the context of Thailand.

Literature on trade induced labor market adjustment and on East Asian IIT has some serious limitations for three reasons:

- 1) Most research has studied developed countries such as OECD countries, rather than developing countries.
- 2) Most research has used Glubel & Llyold's (G-L) index to explain the changed pattern of trade. However, Hamilton and Kniest (1991) have argued that such a static measure as the Glubel & Llyold (G-L) index is not inherently related to changes in trade and specialization, and suggest the use of the alternative measure of MIIT. So, Hamilton and Kniest (1991) applied Marginal Intra-Industry Trade: (MIIT) instead of IIT. Therefore, G-L indices are complemented with a measure of MIIT.
- 3) The smooth-adjustment hypothesis: (SAH), both in G-L and in the MIIT version, have rarely been subjected to explicit tests due to SAH is a part of G-L index and MIIT which both index can't proof the impact of free trade with the result above.

So, this research studies the correlation between IIT and inter-industry trade by using Smooth Adjustment Hypothesis (SAH) to examine the impact from international free trade since 1990. However, expansion of IIT for Thailand will adjusted labor market for proposing policy implication for the future.

The remainder of this paper is organized as follows. The next section addresses discussion of econometric model, empirical results, and conclusion. Details of the dynamic panel data approach employed and the model specification are provided together with the empirical results and discussion.

3. ECOMOMETRIC MODEL

The current study applies a dynamic panel approach. The generalized method of moments (GMM) system estimator will be applied to solve the problems of serial correlation, heteroskedasticity and endogeneity among explanatory variables which can arise in static panel data models. A system of equations in both first-differences (with the lagged level as instruments) and levels (with lagged first difference of the series used as instruments) are combined.

3.1 Dependent Variable

The industry-level employment changes are considered as an inverse proxy for adjustment costs. Burhart (2000) has suggested using the absolute value of employment changes in a particular industry (ΔL) since expected changes in total employment would be indeterminate in the specified model. According to the SAH it is expected that (ΔL) will be negatively related to MIIT. The variable is defined as follows:

$$\Delta L = 2x \frac{(L_t - L_{t-1})}{(L_t + L_{t-1})}$$

Explanatory variables and development of hypothesis follow the research literature. Four hypotheses have been proposed in the study as the following:

Hypothesis 1: There is a positive correlation between the change in obvious consumption and the change in employment. Given that ΔC as the absolute value of the change in obvious consumption between t and t-n, Q being output in the Consumption Equation as following:

$$C = Q + M - X$$

where

ΔC = the absolute value of the change in apparent consumption

Q = output of industries

M = value of imports

X = value of exports

Empirical study found the positive correlation between consumption and employment. Ferto (2009) found a positive relationship when the author analyzed the effects of association in the Hungarian food industry. Brulhart and Thorpe (2000) also found a positive sign in the case of Malaysia.

Hypothesis 2 : There is an ambiguous sign between the change in labor productivity and the change in sector employment. Labor productivity increases lead to labor substitution or indicate that industry expansion will result in an expansion of labor employment. So using the variable ΔP is the absolute value of changing labor productivity at the industry level.

Erlart and Erlat (2006) found a negative sign for Turkey and Ferto and Soos (2010) found a negative sign for Hungarian and Poland while Thorpe (2000) found a positive sign for Malaysia case. We apply ΔP as absolute value of the change in labor productivity at industry level

Hypothesis 3: Marginal intra-industry trade (MIIT) has the lower the adjustment cost. We apply MIIT (marginal intra-industry trade) as a measured by the index of MIIT, which has a negative correlation with employment. The MIIT index takes the value 0 and 1. The value 0 indicates that the marginal trade in the industry is exclusively of the inter-industry trade and the value 1 represents that the marginal trade is entirely of the intra-industry trade.

$$MIIT = 1 - \frac{[\Delta X - \Delta M]}{[\Delta X] + [\Delta M]}$$

where

MIIT = Marginal intra-industry

$[\Delta X - \Delta M]$ = the difference of export and import value

$[\Delta X] + [\Delta M]$ = the sum of difference export and import value

According to smooth adjustment hypothesis (SAH) (Brulhart, 2000), the relationship between MIIT and the change in employment has a negative relationship and reflex the lower adjustment costs.

Hypothesis 4: the openness of international trade influences the competitiveness of firm. We apply T as the absolute value of the change in exports and imports between t and t-n. There is a positive relationship between trade and the changes of employment. Increased trade will induce enhanced competition and hence increased structural adjustment pressures on firms (Bruhart 2000). There is a positive relationship between trade openness and employment. Cabral and Silva 2006 found a positive sign in the Portuguese case. Ferto (2009) found a positive sign.

Model Specification

$$\text{Log}[\Delta L]_{it} = \beta_0 + \beta_1 \log[\Delta L]_{it-1} + \beta_2 \log \Delta C + \beta_3 \log \Delta P + \beta_4 \log MIIT + \beta_5 \log T + \eta_t + \varepsilon_{it}$$

Where $[\Delta L]_t$ is absolute value of employment changes, C is domestic consumption, P is labor productivity(output per worker) and T is imports plus exports as a share of production as a proxy for trade openness. MIIT stands for matched trade changes as measured by the GL index defined above. All variables are in the natural logarithm form; η_t is the unobserved time-invariant specific effects, ε_{it} is a random disturbance assumed to be normal, and identically distributed with $E(\varepsilon_{it}) = 0; \text{Var}(\varepsilon_{it}) = \sigma^2 > 0$

3.2 Data

All data are obtained from the World Bank trade and production database, Bank of Thailand, Thailand National Statistic Official. The data includes the manufacturing sector and is at the industry level as measured at the four-digit level of the international standard industry classification (ISIC) in US dollars. The full sample contains 120 industries and covers the period, 2002-2011.

4. EMPIRICAL RESULTS

Table 2 provides information about the variables involved: It appears that there is heterogeneity of the variables especially for $\log[\Delta L]$ and $\log MIIT$. Thus, the estimation methodology should treat the bias that can be induced by such diversity in the data. In Table 3 we can observe the adjustment costs using OLS with time dummies for all periods (2002-2011). The present analysis evaluates the signs of the coefficients and their significance. Three explanatory variables are significant ($\log [\Delta L]_{t-1}$ at 1%, $\log \Delta P$ at 1%, $\log \Delta C$ at 5%).

The lagged dependent variable $\log [\Delta L]_{t-1}$ is positive, which is consistent with the findings of Ferto (2009) and Erlart and Erlat (2006). The absolute value of the change in apparent consumption ($\log \Delta C$) presents a positive sign although this result was not expected (Erlart and Erlat: 2006; Bruhart and Elliott: 2002). Ferto (2009) found a negative correlation with this proxy and change of employment. According to the study of Brulhart and Thorpe, (2000), Erlart and Erlat (2006) and Ferto (2009) we can consider that the relationship between the absolute value of the change in labor productivity and the change in employment is ambiguous. Erlart and Erlat (2006) found a negative sign. The study of Ferto (2009) finds a positive sign. The variable ΔP presents a positive sign.

Table 2: IIT and adjustment costs descriptive statistics

Variable	Observation	Mean	Std. Dev.	Minimum	Maximum
$\log \Delta L$	120	-1.39817	0.541441	-3.19	-0.35
$\text{Log} \Delta L _{t-1}$	120	0.02591	0.644904	-1.96	1.89
$\log \Delta C$	120	3.75925	0.548548	2.55	4.31
$\log \Delta P$	120	0.88891	0.388548	-0.14	1.87
$\log MIIT$	120	0.07	0.101622	-0.2	0.11
$\log T$	120	4.574	0.332301	3.75	4.96

Fixed-effects (within) regression	Number of observation	=	120
Group variable: industry	Number of groups	=	12.0
R-square: within = 0.5547	Observation per group: minimum	=	10.0
between = 0.2557	Average	=	10.0
overall = 0.4614	maximum	=	10.0
	F(5,103)	=	25.66
corr(u_i, Xb) = 0.0522	Prob > F	=	0.0000

Table 3: IIT and adjustment costs, OLS estimator with time dummies for all periods

Variable	OLS	Std. Err.	t	P> t	[95% Conf. Interval]		sig	Expected sign
log $ \Delta L _{t-1}$	0.4632	0.0486	9.52	0.000	0.3667	0.5597	***	+
log ΔC	-0.2182	0.1092	-2.00	0.048	- 0.4349	- 0.0016	**	+
log ΔP	0.3319	0.0856	3.87	0.000	0.1620	0.5019	***	+/-
logMIIT	-0.4474	0.3501	-1.28	0.204	- 0.2470	1.1419		-
logT	0.1903	0.1932	0.98	0.327	- 0.1929	0.5736		+
constant	-1.7583	0.5861	-3.00	0.003	- 2.9209	- 0.5957	***	

Note : analyzed by STATA/SE 11.0 program,

sigma_u= 0.2539 sigma_e | 0.3372 rho | 0.3618 (fraction of variance due to u_i)
F test that all u_i=0: F(11, 103)= 5.62 Prob > F = 0.0000

*** Statistically Significant at 1% (Level 99%)

** Statistically Significant at 5% (Level 95%)

$$\log[\Delta L]_t = \text{constant} + \log[\Delta L]_{t-1} + \log\Delta C + \log\Delta P + \log\text{MIIT} + \log T + a_i + \varepsilon_{it}$$

$$\log[\Delta L]_t = -1.758 + 0.463 \log[\Delta L]_{t-1} - 0.218 \log\Delta C + 0.332 \log\Delta P - 0.447 \log\text{MIIT} + 0.190 \log T + 0.254 a_i + 0.337 \varepsilon_{it}$$

The variable market structure presents a positive correlation as expected i.e. the minimum efficient scale (log ΔP), is positively associated with employment changes. In other words, competitiveness encourages a large number of firms and increasing openness of trade. According to the SAH, we expect a negative correlation between MIIT and the change of employment. We find the expected sign which indicates that the higher level of MIIT causes lower adjustment costs. Following Bruhart and Elliott (2002) and Erlart and Erlat (2006) we introduce one trade control variable (log T). Bruhart and Elliott (2002) expect a positive correlation between trade and employment change, since increased international trade (log T) permits firms and industries to increase competitiveness. The present result validates this hypothesis. Bruhart (2000) analyzed the relationship between SAH and the MIIT index. The author concludes that the results are better based on yearly changes.

5. CONCLUSION

The objective of this study was to analyze labor market adjustment and IIT in the manufacturing factor in Thailand. Comparing our findings with other empirical studies, we obtained similar results. Econometric estimations supported the hypotheses formulated. Present results are robust for all periods (2002-2011).

The variable ($\log \Delta C$) used to evaluate changes in apparent consumption between trade presents a positive correlation with changes of employment. This result is contradictory to previous studies. Present results show that there are higher changes in apparent consumption between Thailand and trading partners.

In the relationship with the variable change for labor productivity ($\log \Delta P$) we find a positive sign. Using all periods (2002-2011) we find market structure has negative and significant effects on the implicit adjustment cost. We also find a negative relationship between MIIT and the absolute employment changes. This result accords with the predictions of SAH. The correlation between trade openness and employment changes is also according to the hypothesis formulated.

However, this study has some limitations. The study need to research on vertical and horizontal MIIT because it can be shown the two-way trade of different endowments and quality products (Azhar and Elliott, 2008). On the other hand, the study will use a different method to estimate labor cost such as the method proposed by Blundell and Bond (1998) and (2000) to solve some econometric problems such as endogeneity of some explanatory variable.

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Society & Education

Room 609 15:00-16:30, March 16

Session Chair: Dr. Juvy Geneta Mojares

123

Social Networks and Industry Competitiveness: The Case of Liliw Footwear Industry in Liliw, Laguna, Philippines

Juvy Geneta Mojares | *Batangas State University- Malvar Campus*

234

What is the Barrier-to-Imitation Strategy

Leo Huang | *National Kaohsiung University of Hospitality and Tourism*

202

Whistleblowing Protection across Various Cultures: from West to East, from Similarities to Differences

Maria Batishcheva | *Lomonosov Moscow State University*

Viacheslav Vorontsov | *Lomonosov Moscow State University*

324

Meaning of Work in Life: A Comprehensive Perspective from Ancient Indian Spiritual Tradition

Nisigandha Bhuyan | *Indian Institute of Management Calcutta*

382

Why do People Sustain to Participate in the Community of Open Source Software: The Perspective of OSS Ideology

Mei-Ju Chen | *Chienkuo Technology University*

Cheng-Kiang Farn | *National Central University*

Chun-Der Chen | *Ming Chuan University*

162

Unpacking the Construct of School Culture – The Case of Singapore Schools

William K.W. Choy | *National Institute of Education, Singapore*

Hairon Salleh | *National Institute of Education, Singapore*

Jonathan W.P. Goh | *National Institute of Education, Singapore*

Catherine S.K. Chua | *National Institute of Education, Singapore*

Social Networks and Industry Competitiveness: The Case of Liliw Footwear Industry

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ABSTRACT

One of the effects of trade liberalization is the reduction of tariff rates for the manufacturing sector. Aldaba (2012) found that trade liberalization has increased the likelihood of firms exiting the manufacturing industry. Unless domestic firms face economies of scale, they will not be able to cope to the adverse effects of trade liberalization. The footwear industry is an example. It has been reported that the footwear industry in Marikina, known as the Shoe Capital of the Philippines, and in Binan, Laguna has closed down. The footwear industry is said to be slowly dying in these areas. This has adversely affected shoe laborers who, because of lack of employment opportunities in their respective localities, have started to move to other places in search of employment. A number of them found employment in Liliw, Laguna. This study explores the conditions that enable the footwear industry to flourish amidst competition at the local, regional, and national levels. Specifically, it aims to describe the profile of the footwear industry in Liliw, Laguna; analyze the value chain system of four selected footwear firms in Liliw, in relation to the perceived competitiveness; and explore the role of social networks in the competitiveness of four selected footwear firms in Liliw. Four store owners were interviewed for this study. Two of them, Edna's and MaRuth, are classified as small-scale enterprises while the other two, Kyras and Ate Weng's are classified as micro-scale enterprises.

1. INTRODUCTION

With the premise that the GATT would provide equal treatment on countries in terms of trade, i.e. every member country is committed in lowering its trade restrictions and import tariffs, the Philippines would be able to have greater access in the international market most especially in Japan, the United States, and Western Europe (Clarete, 2005).

One of the effects of trade liberalization is the reduction of tariff rates for the manufacturing sector. Aldaba (2012) found that trade liberalization has increased the likelihood of firms exiting the manufacturing industry. Unless domestic firms face economies of scale, they will not be able to cope to the adverse effects of trade liberalization. The footwear industry is an example.

In 2005, the total number of footwear establishments in the Philippines was 1,153 with a total of 16,600 employees. Both figures declined in 2009 with 1,072 footwear establishments and 12,155 employees, or about 7% and 14% decline in the number of establishments and total employees, respectively (DTI-BOI, 2011).

It has been reported that the footwear industry in Marikina, known as the Shoe Capital of the

Philippines, and in Binan, Laguna has closed down. The footwear industry is said to be slowly dying in these areas. This has adversely affected shoe laborers who, because of lack of employment opportunities in their respective localities, have started to move to other places in search of employment. A number of them found employment in Liliw, Laguna.

Objectives

The study explored the conditions that enabled the footwear industry to flourish amidst competition at the local, regional, and national levels. Specifically, it aimed to describe the profile of the footwear industry in Liliw, Laguna; to analyze the value chain system of four selected footwear firms in Liliw in relation to the perceived competitiveness; and to explore the role of social networks in the competitiveness of four selected footwear firms in Liliw.

2. METHODOLOGY

An interview guide was designed to gather data among footwear store owners and workers at Liliw, Laguna last August 2012. Four footwear store owners and three footwear workers were interviewed.

3. RESULTS AND DISCUSSION

History of the Footwear Industry

The footwear industry in Liliw, Laguna started in 1931 when Casiano Pisueña became interested in making slippers. The learning process was no walk in the park, so to speak. He started dismantling his own pair and reassembling it from the outside. The first prototype slippers were made of “tistis” from coconut and rubber from tire interiors. He bought more materials from Divisoria and established the Dimasira Footwear which sold products as far as Manila Hilton and Acacia House. The success of the Dimasira Footwear encouraged other Liliweños to enter the footwear industry. Among the well-known footwear entrepreneurs were Mr. Pedro Villanueva and his wife (who established *Emerita’s Footwear* in 1934), Dr. Felix Nobleza, and Erena Orbeta who put up the *Excellent Footwear* in the early 1940s. Before the outbreak of the Second World War, Liliw has already established its reputation as a footwear industry that rivaled that of Marikina.

However, the emerging industry was suddenly put to a halt during the Japanese occupation, only to resume in the 1950s. Since then, new materials and products were introduced: 1953 saw the start of shoemaking from slipper-making and the use of lukban as a material; in 1954, *Regal Footwear* hired the first “maestro” or mentor who trained laborers how to assemble slippers and use pulis, an imported material from America.

Some laborers also tried to put up their own shoe business. Salvador Monteiro, equipped with knowledge and skills acquired from working in Slipper Rite Footwear, established *Badong’s Footwear* in 1962. *Badong* remains to be one of the oldest surviving shoe stores in Liliw. In 1965, *Gat Tayaw* became the Trade Fair Center with ten (10) stores as initial participants. As time went by, more businesses began to set-up their stalls. At present, *Gat Tayaw* remains to be the footwear center of Liliw, lined with over fifty (50) stores.

The footwear industry generally caters to the domestic market. People from neighboring towns and from different parts of the country regularly visit Liliw to check out and buy footwear either for personal or retail purposes. Most footwear businesses engage in direct selling while some welcome subcontracting and re-sellers or agents.

Liliw is known for its “home-made” style of slippers and shoes (BOI, 2012). It is known to be the *Tsinelas* (Slipper) Capital of the Philippines, rivalling Marikina as the leading footwear industry in the country. The town is also known for its durable and affordable footwear.

In terms of prices, most businesses offer the same range of prices for both imported and locally-manufactured footwear. The price for slippers ranges from Php60 to Php80 per pair, or can be bought at Php100 for three pairs. Women’s sandals can be bought for Php250 and above, depending on the materials used and the overall design. Four store owners were interviewed for this study. Two of them, Edna’s and MaRuth, are classified as small-scale enterprises while the other two, Kyrah’s and Ate Weng’s are classified as micro-scale enterprises. This section presents the interview results and discussions using the value chain analysis.

A simple value chain map used by Tanchuco (n.d.) is followed in this study (Figure 2). This is to provide a broad and simple description of the different activities of the footwear industry which will allow researchers to explore the industry’s primary areas of competitiveness.

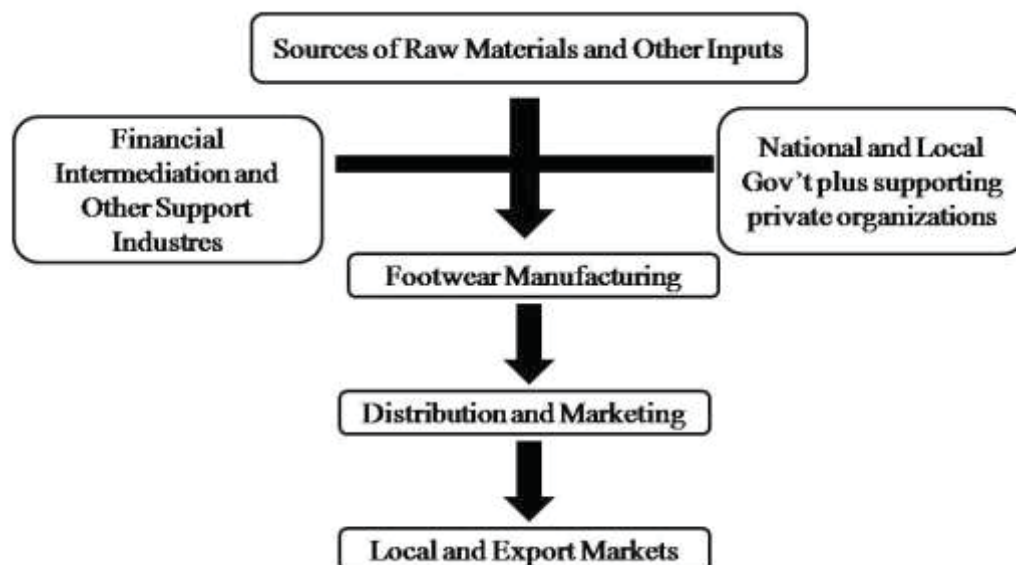


Figure 1. Value Chain Map (Tanchuco, n.d.)

This study made some minor changes in the use of this value chain map. The discussion focuses on the sources of raw materials and other shoe implements, the production, distribution, and marketing of footwear products, the existence of institutional support arrangements, and sources of capital.

Sources of Raw Materials and Other Inputs

There are five (5) footwear supply stores in Liliw. Three of which are located along Gat Tayaw. Edna’s also sells materials for shoe and slipper making. Most of the raw materials come from Biñan and the Quezon province. Meanwhile, one respondent, Kyrah, uses imported textiles from Japan. The owner said that the materials are sent by his mother-in-law who is based in Japan.

Production/Footwear Manufacturing

Liliw, being the *Tsinelas* Capital of the Philippines, is known not only for its home-made slippers, but also for its other footwear products like sandals, leather shoes and espa drills.

The production flow of these products varies from one owner to another depending on the size and demand of their current and prospective customers.

Tanchuco (N.D.) identified several types of workers employed by the footwear industry: the *padronista* who creates shoe patterns and designs, the *sukatero* who is responsible for cutting sections from leather sheets, the *mag-aareglo* who is involved in the preparation of the upper section of shoes, the *cuturera* who sew decorative patterns with the use of large needles on shoes, the *sapatero* who uses a wooden mold to join uppers with sole and heel and the *alamodista* who stitches the soles of shoes to their upper portions using a machine.

Based from the interviews conducted, small-scale enterprises such as Edna's and MaRuth usually employ all the aforementioned types of workers, with at least one worker specializing in each of the specified job description. This permits small-scale shoe producers to increase their productive capacities (compared to hiring one worker who will be doing all the routines). However, in the case of the micro-scale enterprises like Kyra's and Ate Weng's, subcontracting labor appears to be the rule of thumb. In this particular arrangement, laborers are hired to produce a specified range (and quantity) of shoe products. This section presents subcontracting as a mode of footwear production, and the issues and concerns that are faced by owner-respondents.

Liliw Footwear Industry and Subcontracting.

Both small-scale and medium to large scale footwear store owners are generally engaged in subcontracting. Like the top three reasons above why most firms subcontracts also applies among interviewed store owners. For one, Ate Weng a small scale footwear store owner and also a shoe maker said that during peak seasons or when there is an apparent surge in the demand for shoe products, it may be necessary to enter into contract agreements with other shoemakers (labor subcontracting) to meet the additional demand. The subcontract between Ate Weng and another shoe maker is informal, not guided by papers and contracts but only by verbal agreements. The owner (Ate Weng) however retains full control, as she provides the design and determines the desired quantity to be produced. Her costumers usually are *agents*-costumers who buys in bulk (wholesale) and sell the products in other areas (retail).

One owner-respondent, Kuya Emman, unlike his father, he chose not to not engage in subcontracting (and was very much against outsourcing). He in fact used the term *outright* to refer to the lost right of a shoemaker to claim ownership of the designs of end products. As a form of resistance to outsourcing, he personally branded (private labelling) his products so that re-sellers would know that the footwear is made in Liliw. He engages in direct selling instead where customers who came from other places buy footwear products in bulk.

Distribution and Marketing

One way of improving competitiveness in the market is to expand the product line (Kotler, 2000). In this regard, larger stores such as Edna's and MaRuth are in an advantageous position. Both stores offer a variety of footwear, from slippers to dress shoes, to sandals. MaRuth is planning to expand her product range by manufacturing boots, something that is new in the industry of Liliw. This will make her gain competitive advantage against other stores in Liliw as she provides a novel item in their collection. Meanwhile, smaller stores such as Kyrah gains competitive advantage by using imported materials from Japan and by labelling their products as "100% GawangLiliw" (100% Liliw-Made).

Most products do not have labels. Edna's engages in private labelling but most of its products

carry the brand name of the subcontractor. One of the respondents said that he prefers labelling his own products so that customers will know that his products are made from Liliw. In a way, he is reassuring his customers that the products they bought are durable and of quality.

Another marketing strategy is to adjust prices. According to one respondent, there is no standard price followed. She sets her price based on the prevailing price imposed by other stores. Most businesses employ almost the same prices, with only ten pesos difference at most. Price differences are observed across product type, i.e. slippers have lower price compared to dress shoes, considering the cost of production.

The mode of payment for most respondents is cash. One respondent does not want to accept checks or credit. As one respondent argues, post-dated checks are problematic because it incurs more liability than profit.

In terms of distribution, all respondents are engaged in direct selling. Some customers usually buy in bulk, purchasing what is available in the store. Some opt to pre-order. In Liliw, the main promotion strategy is putting up a Trade Fair Center along Gat Tayaw St. Smaller stores such as *Kyrah* would advertise their products by placing a placard that says “100% *Gawang Liliw*”. Such advertisement would imply that his products are of quality and are durable. The reputation of Liliw itself has become a promotional tool. Aside from the annual *Tsinelas* festival, the municipal government does not have other programs to promote and invigorate the footwear industry. With the age of the Internet however, none of them sell their products online. They do not also engage in other advertising activities such as radio and print advertisement. In essence, they do not spend much time in promotional activities. However, these promotional activities may actually improve competitiveness not only in the community level but also in the regional, national, and even in the international level.

In terms of distribution, the four firms generally cater to the domestic market. Most of their customers come to Liliw to buy their products, i.e. they do not incur transportation costs. For *Edna's*, the subcontractors come to Liliw to get the finished products.

Institutional Support

In the case of Liliw, the Department of Trade and Industry (DTI) remains as the main umbrella organization in assisting small medium enterprises (SMEs). However, DTI remains largely visible on large enterprises like *Edna's* and *MaRuth's*. *Edna's*, for example, has been offered to export its products abroad, with the assistance of DTI. But the offer was declined because of the risks associated with not meeting the quota or demand of the market abroad. In the local level, the municipal government has enacted initiatives to promote the local footwear industry (for example, the institutionalization of the *Tsinelas* festival). There is also an existing organization of footwear owners. However, according to most owner-respondents, they do not actively participate in its activities and choose not to be members because the potential benefits are not clear and more importantly, they do not have enough time to attend regular meetings.

Financial Support

In terms of financial support, there are two primary sources of capital: loans from relatives and personal savings. The owner of *Edna's*, for example, had used her savings while working as a sales lady to put up her business. *MaRuth's* initial capital was estimated to be around P15 000. Meanwhile, the owners of *Kyrah's* and *Ate Weng* chose to avail loans from friends and

relatives. The owner of *Ate Weng's*, for example, was able to obtain the necessary capital from her sister who availed of loans from a bank. The owners of *Kyrah* borrowed money from their money to put up their shoe business.

Competition

Competition among small-scale shoe producers is, at present, fairly moderate. Competition between cooperative and non-cooperative shoe producers tends to be modest and non-restrictive. Competition between small-scale and large-scale shoe producers is intense and proactive. Because large-scale shoe producers have direct access to the shoe market, they can easily sink prices, forcing small-scale producers to drop the prices of their products as well.

Table 1. Perceived Level of Competitiveness among the Footwear Store Owners

Particulars	Small-scale footwear owners		Micro-scale footwear owners	
	Ma. Ruth	Edna's	Kyrah's	Ate Weng's
Production				
a) Sources of raw materials	Binan and Quezon	Divisoria and Sta. Cruz	Textile - Japan and other materials within Liliw	Liliw
b) Labor	Laborers from Binan and Marikina	Laborers from, Liliw, Binan and Marikina	Liliw	Liliw
Marketing				
1) Product and Price				
a) Slippers	3 for 100 to 150	3 for 100 to 150	3 for 100 to 150	3 for 100 to 150
b) Shoes	250 – 450	250 - 500	250 - 700 (customized)	N/A
c) Espadrilles	250 -380	250 -380	250 -380	N/A
2) Place	outside Gat Tayaw street	Along Gat Tayaw street	Along Gat Tayaw street	Along Gat Tayaw street
3) Promotion	Liliw Tsinelas Festival	Liliw Tsinelas Festival	Liliw Tsinelas Festival	Liliw Tsinelas Festival
Financial Support	Own Capital	Own Capital	Loan from relatives	Loan from relatives
Institutional Support	Cooperative President, DOLE, Liliw LGU	DTI, Liliw LGU	Liliw LGU	Liliw LGU

Role of Social Networks

There are social arrangements that allow the local footwear industry to thrive both within and outside the town.

4. SUMMARY AND CONCLUSION

The continuous influx of foreign-made footwear has resulted to the systemic decrease in the number of footwear manufacturers in the country. There is constant influx of customers and clients from other parts of the country. Demand for Liliw-made footwear product has increased substantially in recent years.

With the influx of footwear imports and its effects evident in footwear industry in Marikina and Biñan, Liliw footwear industry is able to compete in the market. Although the main products of Liliw are slippers, the industry also supplies sandals, leather shoes, and espadrilles, catering to a variety of market segments, usually men, women and children. This allows the local footwear to compete effectively in the market. Furthermore, the Liliw's

ability to compete effectively in the market is also due to the following factors: the reputation of Liliw as producer of affordable, cheap, and marketable footwear products, increased competition among local footwear producers [which allow the industry to regenerate itself by short-term capitalization], enmity of local footwear producers against imported footwear products from China, and the existence of financial and community support arrangements. Although there is an apparent absence of institutional sources of capital, local producers are able to raise capital by availing loans from relatives and friends. This creates an effectual social network for capitalizing inputs and for reinforcing the need to reproduce the local footwear industry in the area. As a consequence, local footwear producers exhibit extreme enmity toward the importation of Chinese-made footwear. Although competition among local producers is quite intense, the community provides the necessary structural and labor arrangements to ensure long-term viability of Liliw-made footwear. Laborers are free to set-up their own shoe stalls or even household-based production centres. Owners are free to enter into contract agreements with corporate clienteles [this includes subcontracting]. And finally, stall owners exhibit considerable level of cooperation and trust when interacting with local footwear producers. This generally reduces the cost of transactions and increases the value of margins. In other words, there are social arrangements that allow the local footwear industry to thrive even outside the town.

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What is the Barrier-to-Imitation Strategy

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ABSTRACT

This study explores travel agency industry-specific barriers to imitation by first reviewing the literatures on the barriers to imitation and the effects of barrier reductions on travel markets. This is the first attempt to explore and identify the external and internal barriers to imitation in the travel agency industry. A two-stage research design was adopted; this first stage develops three-round Delphi research. The second stage explores a quantitative survey. Those findings provide innovative qualitative and quantitative approaches in that no one else so far has analyzed or tried to discern the issues of barriers to imitation, toward proposing an optimal strategic model for enforcing barriers to imitation.

Keywords: Travel Agency, Barrier Strategy, Imitation, Delphi, SEM.

1. INTRODUCTION

For the past decades, an unprecedented change has been happening in the competitive environment of Taiwan's travel market. Particularly, the Internet's recent growth has created both opportunities for and threats to travel agencies (Standing & Vasudavan, 1999). How can incumbent travel agencies accumulate operating experience, know-how, and expertise give them advantages over newcomers as well as prevent customers gradually shift share of transaction behavior to competitors? How firms can create barriers to imitation. This research presented is differentiated from related studies because of its focus on barriers to imitation in travel agency industry (Skipper, 1987; Zimmerman, 1999; Karakaya, 2002; McAfee, Mialon, & Williams, 2004; Mottiar & Tucker, 2007; Clark & White, 2009; Park, 2009; Pehrsson, 2009; Han, Back & Kim, 2011; Chan, 2011; Han, Kim, & Hyun, 2011; Lee, Agarwal, & Kim, 2012; Huang, 2013). Eventually, travel agency practitioners can appropriately allocate a firm's resources and make the right strategic decisions to build higher barriers so as to the advantages may be not easily and quickly challenged or even replaced.

2. LITERATURE REVIEW

Companies defend their positions by assembling resource combinations that their competitors cannot easily imitate (Bingham, Eisenhardt, & Furr, 2011). Sustaining a firm's advantage requires maintenance of its barriers that barriers to entry give incumbents inherent advantages over potential entrants (Porter, 1980). In hence, barriers to entry are factors that halt or make it difficult for new competitors to successfully enter a market in which they have not previously competed.

Identification of internal and external barriers to imitation in travel agency industry

Travel agency industry not easy to create or sustain first-move advantage, because the products or services of the travel agency providing are easy to imitate. Now, both electronic and mobile commerce have already become easy accessibility, and as such other travel-related suppliers have even adopted a dis-intermediary policy. Facing such a policy threat and competitive pressure, travel agencies now have to quickly understand how to build barrier-to-imitation strategy in order to strengthen their own competitive advantages. These barriers may differ in importance among specific industries (Karakaya & Stahl, 1989). Some studies categorize barriers as external and internal (Madrid-Guijarro, Garcia, & Van Auken, 2009; Karakaya & Stahl, 2009; Liu, Lin, & Chiu, 2011; Huang, 2013). Generally speaking, barriers to imitation that encourage travel agencies can enable them to build competitive advantages and to freely survive in the market. Hence, travel agency practitioners who try to identify external and internal barriers can effectively develop them as powerful competitive advantages within their management strategies.

Determinants of barriers to imitation in order to gain competitive advantages

Earlier studies investigating market entry barriers implicitly assumed an equal perception of entry difficulties by industry participants. They seldom explored the barriers' effectiveness against imitation. Asymmetric information (Barney, 1986) and causal ambiguity (Wanasika & Conner, 2011) have similar properties, because both can create barriers to imitation. If competitors have full information, then they may be able to immediately and fully understand how an advantage arises. In general, travel agencies adopt barriers to imitation in a strategic way in order to identify and monitor trends in the travel market, to evaluate product or service standards, to measure the performance of associated products or collaborators, and to analyze competitors. All these trends have led a number of travel agency entrepreneurs to wonder whether barriers to imitation can generate meaningful core competences or, for that matter, offer a legitimate alternative to price wars in existing travel markets. Hence, the sustainability of an advantage arises from maintaining the barriers to imitation.

Building imitation barrier strategy in the uncertain competitive travel agency market

Among the major barriers are government policies, capital requirements, cost advantages, economies of scale, product differentiation, costs of switching, limited access to distribution channels, knowledge, resource barriers, and other types of competitive advantage (Nahata & Olson, 1989; McDonald, 1990; Getz & Petersen, 2004; Chong & Leon, 2008; Lee, Morrin, & Lee, 2009; Jesus & Ruben, 2010; Bingham, Eisenhardt, & Furr, 2011; Huang, 2013). However, sustainability of competitive advantage is not possible, except acquiring inimitability of barriers. The kind of barrier strategy would depend on various purposes, such as product development, customer service, thought leadership, communication with stakeholders, focus on a specific niche, and promotional purposes or customer feedback (Tang & Zannetos, 1992; Schnell, 2006; Poletti, Engelland, & Ling, 2011). This indicates that the role of barriers to imitation will likely become more important in the near future.

Achieving expected performance by building barriers to imitation

Ghemawat (1986) suggests that the sustainability of a competitive advantage is also controlled by such factors as the source of the advantage, the industry, and the amount of own competition. A competitive advantage that is ensured with competencies can also be viewed as something that can be used within a firm's strategy. There is substantial agreement within the literature on the definition of competitive advantage in terms of price, cost, and differentiation. Furthermore, the costs of switching make it more difficult for another operator to compete (Liu, 2006). Other competitive advantages are factors inherent in some

firms, providing such firms with advantages over their competitors (Picard & Chon, 2004). Adding barriers to imitation for products, services, and processes has become a central theme in strategic management for travel agencies. Hence, travel agency managers may face increasing challenges in developing new barriers to imitation, in implementing effective and efficient strategies, and in attaining high management performance.

Scarcely any attention has been paid to the barriers to imitation in the travel agency industry. Some related studies help improve our understanding of barrier strategy theory and strategic model issues, but few are related to the travel agency industry. This study attempts to examine barriers to imitation in particular as it analyzes the barrier strategic model for travel agencies.

3. OBJECTIVES THE STUDY

This study explores the market's external and internal barriers for the travel agency industry to address the following major questions:

1. Conduct a Delphi approach on the target travel agencies. Their responses provide much better insight into the internal barrier, the external barriers of pursuing competitive advantage, and the expected performances through building barriers to imitation.
2. Identify the underlying determinants of adopting barrier-to-imitation strategies for travel agencies to discover better practices for upgrading performance effectiveness and pursuing competitive advantages.
3. Perform a large-scale survey on a target population, including General Travel Agencies (GTAs) and Tour Operator Travel Agencies (TOTAs), which are the prominent travel agencies in Taiwan. Their responses provide much better insight into the barrier-to-imitation strategy model of travel agencies.

4. METHODS

This study uses multiple methods to collect data from multiple sources, including qualitative and quantitative surveys, so as to improve its validity. A two-stage research design is adopted. This stage attempted to discover what panel experts regard as the most important external and internal barriers to imitation. In doing so, the study sought to determine those indicators that travel agency practitioners identify as barriers to imitation that would lead to competitive advantages. Thus, a three-round Delphi survey method was used to develop the conceptual framework (see Figure 1).

Figure 1

The second stage involves a quantitative survey used to confirm the variables. Finally, an optimal model for barrier-to-imitation strategy is built. An effort is made to discover better practices for adopting this barrier-to-imitation strategy in the strategic development of travel agencies.

Sampling

A Delphi study does not depend on a statistical sample aimed at being representative of any population. Rather, it is a group decision mechanism that requires qualified experts who have a deep understanding of the issues (Okoli & Pawlowski, 2004). The first-round Delphi survey used a set of follow-up interviews with 15 experts who were qualified to participate in this study.

The second stage set up a specific mail questionnaire survey and obtained valid response data from 214 travel agencies, representing about 12.08% of the target population. The sample population size is 1,772. It includes members from Taipei, New Taipei, Taichung, Tainan, and Kaohsiung – the five biggest cities in Taiwan. Stratified random sampling techniques are used to improve sample generality and several criteria have been put into place.

Data analysis

The first stage adopts a three-round Delphi survey, combining both qualitative and quantitative approaches and using experts in the field of marketing channel management. In order to improve the indicators' validity, convergence, consensus, and concordance, four criteria have been put into place: (1) the standard deviation value of each attribute is not greater than 1; (2) the value of a mean score rounded down 0.4 or rounded up 0.5 in units is equal to the value of the mode; (3) the value of the quartile deviation ranges from 0 to 0.6, with less than 0.6 indicating strong consensus and 0 indicating a perfect consensus, while it ranges from 0.6 to 1, with 1 indicating no consensus (Holden & Wedman, 1993); and (4) Kendall's W coefficient of concordance has a value of W ranging from 0 to 1, with 0 indicating no consensus and 1 indicating perfect consensus between lists (Schmidt, 1997). If any attribute does not match two of the four above criteria, then the next round of the Delphi survey is begun. The results of the qualitative interviews corroborate these findings, in that most interviewees agreed that the barrier-to-imitation strategy is an effective strategy tool for travel agencies, does contribute to their performances, and that their sales had increased as a result of competitive advantages. The experts' data were then analyzed, ending with the results in Table 1.

Table 1

The second stage uses a quantitative survey that discerns the dimension variables. Data are initially analyzed using univariate descriptive statistics. Finally, two attributes of internal barrier, three attributes of external barrier, and three attributes of barrier-imitation strategy dimension are deleted and any others of those attributes are recognized through a preview of the literature, condensed in the Delphi survey process, and confirmed from factor analysis in order to determine whether any underlying dimensions or factors do exist. Principal Component Factor Analysis with a varimax rotation is then applied, and a reliability analysis is also used to assess the interval consistency of the variables retained in each dimension.

5. FINDINGS

The results of the two-stage analysis yield several insights that confirm previous findings and shed light on the future of travel agencies that want to enhance their competitive advantage and firm performance through imitation-barrier strategies under several external barrier forces and internal barrier restrictions.

Reducing internal barriers lead to the development of competitive advantages. When entry barriers are low, profit opportunity is vulnerable to the entry of competitors from outside. They often face difficulty in finding the right details about all aspects of internal barriers and then try to establish a sustainable competitive position. Nowadays, many major travel agencies lack product (w1) and service differentiation (w2), and qualified tour guides and leaders (w3). If held by incumbent travel agencies, these qualities would make it difficult for new travel agencies to enter markets because they involve situations where

incumbents would have sufficient understanding to attempt to generate barriers to imitation. Product and service differentiation can also be a competitive advantage for travel market entrants. Most of these identified factors are internal barriers, which confirm the findings of Madrid-Guijarro, Garcia, & Van Auken (2009) and Schnell (2004) that human resources and product differentiation are internal barriers. These three factors account for over 71.28% of the variation in the data. All three-factor scales have a Cronbach alpha of 0.80.

Overcoming external barriers also enforce the development of competitive advantages. Among the major barriers are lack of technology change capabilities (x1), and lack of an understanding of market needs (x2). The findings indicate that a stable relationship with upstream suppliers (x3) can quickly create barriers to enter the travel market and are the key to gaining a competitive advantage. Eventually, incumbent travel agencies may raise barriers by blocking distribution channels. These external barriers have been identified in other studies such as Powers (1997) and Karakaya and Stahl (2009). Similarly, technology change capabilities or understanding of market needs are important and require careful evaluation before making travel market entry decisions. Another major of external barriers is stable relationships with upstream suppliers as the third most important. These three factors account for over 68.57% of the variation in the data. All three-factor scales have a Cronbach alpha of 0.77.

Barriers to imitation are factors by which to build a competitive advantage that would make it difficult for new competitors to successfully enter a market.

Where barriers are low, the advantage may be easily and quickly challenged (Huang, 2013). Travel agencies are required to build new barriers, establish market-leadership advantages (y1), adjust to the new competitive strategic actions of incumbent travel agencies, and combat the entry of unexpected industry outsiders. Hence, travel agencies acquire reputation advantages (y3). More specifically, a for-profit travel agency builds barriers to imitation to acquire brand loyalty. This study found that the sustainability of the advantage depends on the existence of barriers to imitation. Therefore, some travel agencies develop differentiated strategies to offer innovative products (y2). Clearly, innovative is a source of advantages to rivals, and as such, it creates barriers to imitation. These findings on the building of barriers to imitation to acquire competitive advantages support the findings of previous studies such as Wanasika and Conner (2011). These three factors account for over 72.74% of the variation in the data. All three-factor scales have a Cronbach alpha of 0.81.

There are clear performance advantages in different barrier-to-imitation strategies. Incumbent travel agencies avoid markets where profit expectations are low. However, entrants may counter the increased market growth (z2) of incumbent travel agencies by lowering their own fares, thereby starting a price war. Faced with some entrants that may be inclined toward a price war, incumbent travel agencies would seek to achieve their expected profitability (z4) by upgrading product and service quality (z1) and by increasing their effectiveness in exploiting new customer opportunities (z3) compared with their rivals. The above findings are consistent with previous research studies by Brahma and Chakraborty (2011). Hence, it is essential for travel agency practitioners to evaluate the performance of barrier strategies on their strategic management practices and to determine how to benefit from it. These four factors account for over 76.97% of the variation in the data. All four-factor scales have a Cronbach alpha of 0.90 (see Table2).

Table 2

6. CONCLUSION

As travel markets become more competitive, transaction profits steadily eroded. Travel agency practitioners clearly should be able to create higher barriers to imitation for other travel agencies and affect the final product and service offering. Indeed, this study offers the first stone in what a practical overview of travel agency practitioner-focused building of barrier-to-imitation strategies based on the results of a two-stage survey among major Taiwan travel agencies. It also identifies the portable barrier strategic model in the travel agency industry that is the most important for the strategic management of travel agencies. Barrier-to-imitation can have extremely anti-competitive effects. They not only can acquire market leadership, but also offer innovative product. Facing heavy competition and low profitability in the travel market, there are many reasons for optimism concerning the Barrier-to-imitation strategy of travel agencies.

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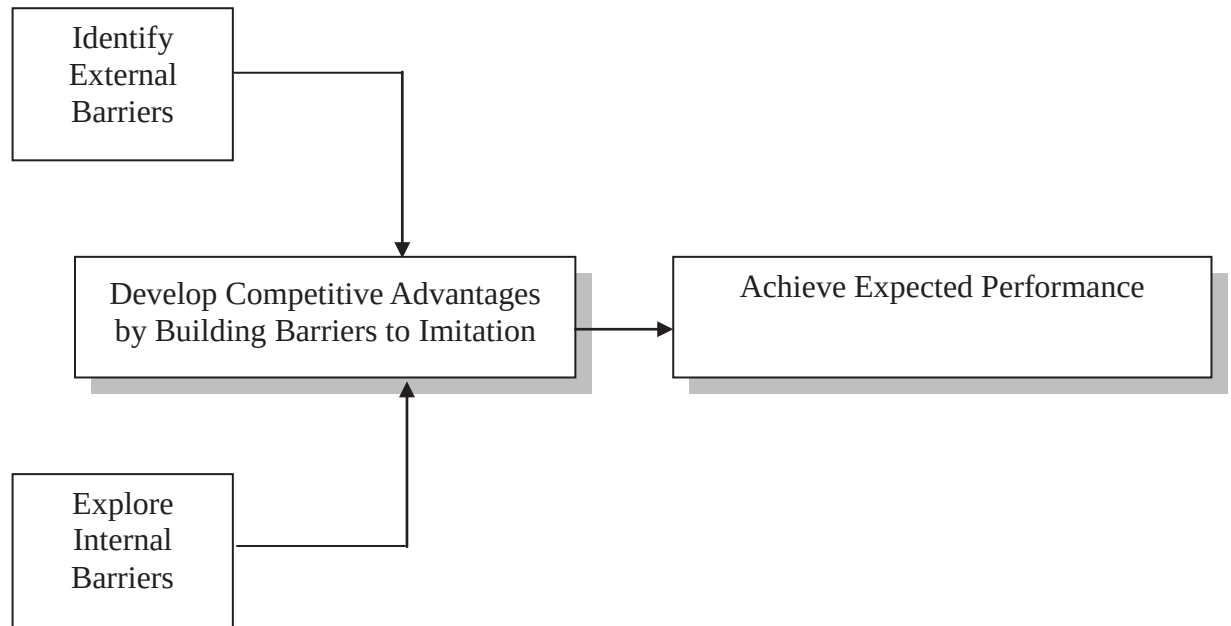


Figure 1. *Framework of Developing Competitive Advantages by Building Barriers to Imitation*

Table 1. Delphi Result of Barriers-Advantage-Performance Model Dimensions

Dimension	Factor	N=13 (Response Rate)=100%				
		Mean	Mode	S.D.	Q.D.	Kendall's W
Internal Barrier	Lack of product differentiation (m_1)	4.85	5	0.38	0	0.62
	Lack of qualified tour guides and leaders (m_2)	4.85	5	0.38	0	
	Lack of service differentiation (m_3)	4.77	5	0.44	0.25	
	Lack of access to distribution channels (m_4)	4.69	5	0.48	0.5	
	Lack of upstream suppliers' privileges (m_5)	4.08	4	0.49	0	
External Barrier	Lack of a stable relationship with upstream suppliers (n_1)	4.85	5	0.38	0	0.60
	Lack of an understanding of market needs (n_2)	4.77	5	0.44	0.25	
	Lack of technology change capabilities (n_3)	4.69	5	0.48	0.5	
	Lack of contracts to block downstream distribution (n_4)	4.69	5	0.48	0.5	
	Lack of partners' cooperation opportunity (n_5)	4.38	4	0.51	0.5	
	Ability to endure incumbent's threat of retaliation (n_6)	3.69	4	0.63	0.5	
Barriers to Imitation	Acquire market leaderships (S_1)	4.92	5	0.28	0	0.85
	Offer innovative product (S_2)	4.92	5	0.28	0	
	Acquire brand loyalty (S_3)	4.77	5	0.44	0.25	
	Acquire reputation advantages (S_4)	4.77	5	0.44	0.25	
	Acquire advanced technological skills (S_5)	3.77	4	0.44	0.25	
	Acquire absolute cost advantages (S_6)	3.54	4	0.52	0.5	
Performance of Barrier Strategies	Increase in product & service quality (P_1)	4.92	5	0.28	0	0.21
	Increase in market growth (P_2)	4.85	5	0.38	0	
	Increase in new customer opportunities(P_3)	4.77	5	0.44	0.25	
	Increase in expected profitability(P_4)	4.62	5	0.51	0.5	
Total Kendall's W =0.63						

Table 2. Summary of the Barrier-to-Imitation Strategy Model

Model Construct Dimensions		Mean	Std. Dev.	Factor Loading	Cum. Pro. %	Cronbach's α
Internal Barrier	Lack of product differentiation (w_1)	3.74	0.88	0.86		
	Lack of service differentiation (w_2)	3.84	0.88	0.81		0.80
	Lack of qualified tour guides and leaders (w_3)	3.89	0.90	0.86	71.28	
External Barrier	Lack of technology change capabilities (x_1)	3.39	0.81	0.76		
	Lack of an understanding of market needs (x_2)	3.91	0.76	0.85		0.77
	Lack of a stable relationship with upstream suppliers (x_3)	3.96	0.82	0.87	68.57	
Barriers to Imitation	Acquire market leaderships (y_1)	3.56	0.85	0.90		
	Offer innovative product (y_2)	3.68	0.85	0.87		0.81
	Acquire reputation advantages (y_3)	3.71	0.87	0.79	72.74	
Performance of Barrier Strategies	Increase in product & service quality (z_1)	3.95	0.79	0.89		
	Increase in market growth (z_2)	3.87	0.75	0.89		
	Increase in new customer opportunities (z_3)	3.97	0.78	0.87		0.90
	Increase in expected profitability (z_4)	3.85	0.76	0.85	76.97	

Whistleblowing protection across various cultures: from West to East, from similarities to differences

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ABSTRACT

The paper analyzes the whistleblowing designing and its implementation across many cultures. This article concludes that at the stage of the whistleblowing implementation there are certain similarities both in eastern and western countries in legislation realm. As regards the whistleblowing practice, the West differs from the East with not enough efficient whistleblowing functioning. Adaptation of the whistleblowing mechanism to the cultural features and formation of loyalty towards whistleblowers could help to overcome these blemishes.

Keywords: whistleblowing, cultural and national peculiarities, self-actualization, eastern and western countries, devotion.

Whistleblower's protection initially, being conceived in the United States, nowadays exists throughout many Anglo-Saxon countries: USA, Canada, United Kingdom, Australia. In addition to that, whistleblowing subsists in nations such as Japan, Philippines, South Korea, South Africa. Therefore, the legislation protecting whistleblowers, that originated in the West, was designed and implemented worldwide, from the West to the East, across different nations and cultures.

Marcia Miceli and Janet Near provide a good formal definition of whistleblowing as «the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employees, to persons or organizations that may be able to effect action» (Miceli M. & Near J., 2008, p.15.).

The overall meaning of the relationships between individuals and social environment in Western and Eastern countries defining by the cultural paradigm could be described as follows:

- Intention of taking advantage of the social environment's possibilities – it's typical for the majority of **western** countries;
- Intention of reaching harmony with the social environment - it's typical for the majority of **eastern** countries;
- Intention of defending from the dangerous and harmful influence of the social environment - it's typical for the «**traditional** societies» with undeveloped economics (Klementev D.S., 2008, p.123).

On the basis of this approach, in «traditional societies» with undeveloped economics there is neither whistleblowing legislation nor prerequisites for its formation. While the origins of whistleblowing exactly can be traced in the West, nowadays, it spreads out globally to the East. Hence, the worldwide surge of whistleblowing legislation raises the crucial question

concerning the legislation implementation into practices and its influence around the world, even in Eastern countries with absolutely divergent cultures.

As regards the whistleblowing implementation and designing, many countries, forming their own legislation, actively take advantage of the legal foundation in different countries (Hartman L., Elm D., Radin T., Pope K. R., 2009, p. 262). So, the Whistleblower Protection Act of 1994 in New Zealand was basically shaped on the analogous law of the South Australia state; in many respects, the authors of the Whistleblowers' Protection Bill of 1999 in Ireland were borrowed from the United Kingdom Public Interest Disclosure Act of 1998. While New Zealand and Australia, for instance, inhabit the same part of the globe, the countries boast significantly distinct cultural leanings. This dissimilarity is also true with regard to Ireland and the United Kingdom, Japan and Israel. Their legislation protecting whistleblowers in Japan and Israel, formed under the significant influence of the UK legal experience, it is possible to ascertain that the whistleblowing legislation of one country could be adopted to the specific requirements of the other one, despite of the differences across nations and cultures (Calland R.& Dehn G., 2004, p. 15).

Notwithstanding such differences, diverse countries could be characterized by various purpose priorities of the whistleblowing legislation. A cross-national research, conducted by Hartman L., Elm D., Radin T. and Pope K.R., showed that that purposes vary from country to country and such distinctions reflect and underscore the pervasiveness of culture in governing interaction between people and organizations, but the whistleblower protection plays the key role in all of the named countries (Table 1) (Hartman L., Elm D., Radin T. and Pope K.R., 2009, p.269). Moreover, in legislations, being formed later, set of that purposes becomes broader.

Table 1: Purposes of whistleblowing legislation across countries (Japan, South Korea, Australia, New Zealand, United Kingdom, United States)

	Japan	SK	Aus	NZ	UK	USA
To promote the public interest	+		+	+		
To improve the public service		+				
To prevent and eliminate wrongdoing in public and private sector organizations		+				+
To promote compliance with laws	+					
To encourage, facilitate disclosures of wrongdoing; to create a culture which will facilitate the disclosure of irregular conduct in the workplace			+	+		
To provide procedures for whistleblowing; to provide guidelines for the disclosure of information about wrongdoing		+				
To protect whistleblowers	+	+	+	+	+	+
To mandate organizational action on whistleblowing	+		+	+		

Meanwhile, the similarities between diverse cultures, both eastern and western, consist in the following: every nation has a culturally specific counter-argument to whistleblowing regardless of its existence (Vandekerckhove W., 2011, p. 97). These arguments against whistleblowing could rely on two propositions:

- Whistleblowing is not inherent in this culture initially;
- An extremely negative experience of the whistleblowers took place in the past.

So, legislation protecting whistleblowers is now in place in the U.S. and Australia, the U.K. and South Korea, Belgium and South Africa, the Netherlands and New Zealand, Japan and Norway, and Romania. Nevertheless, in these countries there is a certain watchful attitude towards the whistleblowers. Whistleblowing is therefore viewed unfavorably in South Africa, where the very thought of it brings to mind the apartheid-era informants; in South Korea a negative attitude towards whistleblowing is made because it contradicts to the Confucianism; in Belgium one appeals to the Nazi past where the whistleblowing practice was enough expanded; In Romania, it is inherent in the post-Second World War, the Department of State Security «Securitate» with an extensive network of informants (Hartman L., Elm D., Radin T., Pope K. R., 2009, p. 259).

In Germany anything that resembles turning friends and neighbors and colleagues against one another is therefore resisted. Certain pockets of German people continue to feel the legacy of World War II and Nazi Germany (Gibeaut, 2007, p.50). There remains a degree of sensitivity to having members of a community «inform» on one another, which was a common tactic employed by the tyrannical Gestapo.

In France, a cautious attitude in society to those who commit overhead exposure, dates back from the time of the French Revolution («France in move to protect whistle-blowers», Timesonline, March 6, 2007). Even in the U.S. (the country with the most developed whistleblowing in the world and a very positive attitude in society to whistleblowers) sometimes been suggested that whistleblowing contradicts human rights and the doctrine of free labor. In the corporate sector, they are compared with industrial espionage, «harmful to free enterprise». In this country, there are negative connotations around the concept of «whistleblower» as «gossip, snitch, rat, sneak» (Thompson C., 2003, p. 66). Being labeled a «dobber» in Australia «is a serious insult and «dobbing» is considered a betrayal in a culture where «mateship» [friendship] is often omnipotent and speaking out has strong social «disincentives» (Trott, 2004, pp. 119, 124). In Australia, there exists a deeply embedded norm and vocabulary that discourage reporting. Prevalent in Australia is the theme, «Never dob a mate» (Lambert J., 2005, p. 93).

Across the ten EU countries, according the Transparency International, the term «whistleblower» is associated with being an informant (e.g. in the Czech Republic, Ireland, Romania and Slovakia), a traitor or spy (Bulgaria, Italy) and/or a snitch (Estonia, Hungary, Latvia and Lithuania). In many of the countries assessed, these negative perceptions of whistleblowing are the results of years of authoritarian regimes and the existence of secret police networks. In many of the countries assessed, these negative perceptions of whistleblowing are the result of years of authoritarian regimes and the existence of secret police networks. During Soviet times, individuals provided the authorities with information, often secretly, on neighbours, co-workers and family members. In other cases, such as Ireland and Italy, there seems to be a general mistrust of public authorities and an emphasis on not speaking out against your neighbor or colleague. In countries with small populations – such as Estonia, Latvia and Lithuania – the close-knit nature of communities can pose a significant challenge for whistleblowing mechanisms, particularly in terms of encouraging disclosures

and assuring the confidentiality of whistleblowers who come forward («Alternative to Silence», Transparency International, p.7).

What are the peculiarities of the whistleblowing practices in the East and the West? There are many differences. First, whistleblowing was «born» in the West, where it successfully implemented, and secondly, in the countries of the East, where the whistleblowing legislation exists, it does not function enough efficiently. The reason is that many researchers consider the western culture is peculiar individualism, in contrast to the eastern culture with its collectivism.

Sims R. and Keenan J. (1999, p.142) and Brody R.G. et al..(1999, p.387) found that in collectivist cultures workers will avoid criticizing a co-worker – which is often the case in whistleblowing – because preserving harmonious working relations takes priority. Analysis of dependence of the whistleblowing functioning in the public service on the self-actualization of individuals across societies clarifies this issue.

There is a dependence of the whistleblowing practice on the methods of self-actualization of individuals in different societies. Zakharov N., exploring the system of regulators for social actions of public servants (2002, p.57), gave general characteristics of the ways of self-actualization of the individuals in the United States and Japan, such important for the whistleblowers traits, such as the devotion and private initiative. Japanese way of an individual's self-actualization Zakharov defines as a «devotion to corporation». The basis of the Japanese self-actualization is the «samurai spirit», which is transformed by the industrial era. «Loyalty to the corporation» - this is, above all, dedication to the community.

The western self-actualization is based on the «private initiative». The most developed and typical form of self-actualization of the West is the American one. Its platform is the ethics of responsibility, which determines the quality of the person, as individualism.

This method of self-actualization involves: freedom of expression; initiative and personal responsibility for the result; balanced development as a criteria of efficiency; equal opportunities for all, characterized as equal attitude of everyone to the rights and duties.

The general characteristics of methods of self-actualization, articulated by Zakharov, are presented in the Table 2 (2002, p. 78).

Table 2: Comparison table of the self-actualization methods

Type	Features
American: private initiative	Freedom of self-expression. Guaranteeing of equal possibilities for all. Competition, effectiveness. Decision from the goal analysis. Innovation. Specialization as a positive factor. Merit rating. Basis of the promotion are the work results and initiative. Pluralism, delegation of responsibilities. Demonstration of power is condemned. Orientation of personnel for future.
Japanese: Corporate devotion	A team decision-making is more preferable. Attention to the personality of the employee, personification of the organizational activities. Initiative, cancellation from the tight control. Preference to the vaguely described functions, treaties, informal contacts. Strong motivation to the labor achievements and group nature of the responsibility. Personal identification with the team.

There is a clear-cut relationship between the whistleblowing practice and methods of self-actualization of the persons in the US and Japan. In the United States, where the self-actualization of an individual is based on private initiative, the old-established and best off traditions of the whistleblowing practice with well-developed legal system not only in whistleblower protection, but also in whistleblower's remuneration; with a very positive perception of the whistleblower in society as a man, heroically revealing the facts of

delinquent behavior in order to protect the public and national interests. In Japan a corporate devotion as a method of self-actualization of the individual conceals certain contradictions for the whistleblowing functioning. On the one hand, it establishes a favorable environment for the whistleblowing accomplishment in the interest of the organization and society as a whole. On the other hand, personally identifying himself with a group, the individual must be loyal to the members of community, his colleagues and corporation in general. Therefore, in Japan, although the whistleblower's protection exists, the whistleblowing does not spread out as in USA.

The influence between method of self-actualization and certain aspects of the whistleblowing functioning could be discovered hereinafter:

Table 3: Influence between method of self-actualization and certain aspects of the whistleblowing functioning

Method of self-actualization	Country	Presence of the whistleblowing law	Willingness of persons to whistle the blow
Private initiative	USA	Whistleblower Protection Act	High
Corporate devotion	Japan	Whistleblower Protection Act (2004)	Low

In Japanese traditions, the touch point is «shame» or «disgrace», because a person's responsibility is collective, and because the disgrace he or she brings is to his or her family or community, there are extraordinary psychological pressures against whistleblowing (Hartman L., Elm D., Radin T., Pope K. R., 2009, p. 260). A personal responsibility is identical to the collective one, the «shame» and «disgrace», affecting one person with delinquent behavior, transmitted for the whole group (Magnier, M., 2002, pp. 73-74).

Magnier (2002, p.73) boldly asserts that an assortment of more recent whistleblowing triggered scandals (government and corporate) have collectively «shocked many Japanese and undermined their faith in institutions that helped rebuild the nation after World War II».

That is the reason why protective legislation in countries like China might translate into mere lip service. Although legislation exists in China to protect whistleblowers, it is commonly recognized as immaterial (Gong, 2000, p. 54; Johnson, 2007, p. 87). People lack the ability to voice concerns in many areas of their lives in China; the workplace is no exception (Keenan, 2007, p.88). Although legislation exists in China to protect whistleblowers, it is commonly recognized as immaterial (Gong, 2000, p. 57; Johnson, 2007, p.90).

The nature of a whistleblower's action, alone standing out against identified or suspected wrongdoing, the best exposes in the western individualist culture than in the eastern collectivist one. It makes the whistleblowing practice in the West more efficient than in the East.

However, that does not signify that the whistleblowing legislation should not present across diverse countries and cultures. The question of efficiency of the whistleblowing mechanism certainly is extremely important, nevertheless, it does not mean in that case the drawbacks are able to outweigh the advantages; the latter favors or may favor the development of whistleblowing legislation in the future.

In conclusion we underline that the spreading of the whistleblowing practice, originated in the West, is gradually implementing in the eastern cultures, relies on the national and cultural similarities, simultaneously overcoming the cultural differences. Consequently, the crucial question of correspondence between the whistleblowing legislation and cultural peculiarities

still remains. It is obvious the higher degree of that correspondence requires the more efficient whistleblowing functioning. Hence, it is significant to achieve that correspondence in two ways:

- thorough elaboration of the whistleblowing legislation along with the national and cultural regulations;
- more loyalty towards the people who blow the whistle for the public good.

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Meaning of Work in Life: A Comprehensive Perspective from Ancient Indian Spiritual Tradition

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ABSTRACT

Most people only understand ‘work’ as material, empirical and social, while ignoring the spiritual and transcendental. The result is the trap of ‘work for incentive’. This work-incentive trap eventually corrupts not only the nature of work (work which yields more monetary incentives is sought after than work that fulfils or satisfies the soul) but also character of individuals who fall into that trap. A broader and comprehensive understanding of work can salvage humankind from the follies of material existence. In this paper, we examine the evolution of work ethic in India, embedded in its spiritual tradition, and provide a framework for managers to understand how people need to relate their work to their life in organizations. Such holistic understanding of work results in less occupational stress, improved personal well-being, and other positive work and societal outcomes.

Keywords: work, spiritualism, meaning, life

1. INTRODUCTION

In an economic system, work serves as the basic economic support of individual and/or family. However, for many, work is not meant only for simple fulfillment of necessities. As human beings enjoy certain special faculties like ‘power of reasoning’ (rationality) and ‘freedom of will’ (choice), these faculties significantly influence the nature of work that human beings are engaged in as opposed to the nature of instinctive works which humans share with other organisms. In the latter case, work and activity are primarily manifestations of instincts. In the former, the nature of work can be greatly modified by *will*. In essence, for human beings work stretches much beyond the physical requirement where people are trying to find the meaning of their lives and their connectedness to the world through the kind of work they are engaged in. Professional workers value work as a total way of life (Orzack, 1959; Parker, 1965); as a way to express the inborn and hidden potentials, like divinely bestowed intelligence and creativity. For some, work provides something interesting to get engaged with, accomplish and contribute for a better world. Absence of such engagement leads to idleness and boredom. Interestingly, work helps keeping people occupied - an alternative to boredom and restlessness (Moarse and Weiss, 1955, P. 191). Some value working and the freedom to work, while others value comforts, economic rewards, and working conditions (Lyman, 1955) of a job. Nevertheless, lower-skill workers and workers who earn the minimum are more likely to attach only economic security to work; whereas high-skilled, professional and more valued workers (whose basic necessities are secured

either by earning or by inheritance) may look beyond and look at work as a source of self expression, social good, and public service.

2. DEVELOPMENT OF RESEARCH PROBLEM: RELEVANCE OF SPIRITUALISM IN MANAGEMENT ACADEMIA

Over the ages, people have primarily worked for temporal and instrumental gains. The main purpose is undisputedly survival, without which life would be miserable. However, beyond this basic instinct of survival which human beings share with every other living organism, humanity has always encountered a few existential questions, including the need to find the meaning of life, which is extended to finding meaning in what they do (work for) in life.

Thus, human beings have an 'intrinsic will' to find meaning of their life and may be of work. Functional disciplines, like Management, believe in 'managing' and 'giving meaning to work' that in turn increases worker's satisfaction and thereby organizational productivity. The management approach is practical, but the philosophical question is vast and holistic. 'How ought I live?' (Socrates), 'How are we to live?' (Singer) are fundamental questions. The modern 'state' is made responsible for providing environment and mechanism for the development of an 'autonomous self' of the citizens, so that they continue their quest for meaning and goal of life beyond the ordinary survival instinct.

Humans are not *autometas* like automatic machines that are programmed to work in a certain fixed and predictable manner. They are highly complex machines with the power of 'free will' and a complete empirical explanation of which is beyond the purview of any or all of the academic disciplines together, for that matter. Life is a nice blend of intrinsic and temporal, subjective and objective, empirical and transcendental; so finding meaning is complex, and pervasive throughout academic disciplines like philosophy, psychology, sociology, religion, and spirituality.

Problem Identification

However, the domain of spirituality remains to be least explored in academic literature, as many believe it is either intractable or impractical.

3. RESEARCH METHODOLOGY

This paper attempts a spiritual explanation of the meaning of work in human life by taking insight from the ancient Indian spiritual traditions. The Indian spiritual tradition is vast and holistic. It provides explanation to almost all of humankind's existential questions.

4. RESEARCH LIMITATIONS

There has been problem with interpretation and explanation and even manipulation of meaning by certain special interest groups, who tried to keep their interests secured over the ages. More so, this tradition has also been projected by most interpreters, as life negating. Though we admit that no interpretation is perfect and likely to be influenced by the 'bounded rationality' as well as 'social forces' of the particular time, we also accept such limitations in our paper, while trying to provide a transparent and unbiased interpretation of the concepts involved. Moreover, very few like Carrington (2010) have tried to provide a spiritual paradigm for (academic) understanding and implementation of spiritual theories and practices.

5. DISCUSSION: MEANING OF LIFE: SUBJECTIVE AND/OR OBJECTIVE?

Meaning of life, though has a significant subjective component to it as it concerns the 'self', cannot be purely a personal discovery. If it is purely subjective, any act can be given meaning, including the act of pure selfishness, which sometimes leads to heinous acts committed by the self. Finding meaning is more about finding a transcendental cause of life; a cause that extends beyond the ordinary survival, beyond the empirical world, and probably and most importantly, beyond the purely selfish interest. As Singer (1995) opines, true meaning of life is connected to building a better world. It is easy for ordinary mortals to get entangled in the 'self-trap', where anything that does not directly or immediately benefit and satisfy the requirement of the self, is ridiculed. Self is perceived as opposed to others and self interest is pursued as the primary goal. This very juxtaposition of self with others is flawed and is also the cause of all problems in society. Finding meaning of life goes beyond the selfish survival instinct, where humans exercise their faculty of wisdom, intelligence, and intuition to discover their connectedness to the universe, role of their existence, and meaning beyond their transitory existence.

Literature on Finding 'Meaning of Work' in Life

There have been various scholarly researches on the subject of how work relates to human life and how work adds meaning to life. Finding meaning of one's work in life is more an important existential concern than merely a simple management question, as projected in the management literature. Addressing such an existential concern can have profound implication for psycho-physical well being of humans (Wong and Fry, 1998), which in turn can influence the way people live, work and relate to other things and beings in the universe. Pratt and Ashforth's (2003) research findings indicate meaningful work to be as important as pay and security – and perhaps more. Management literature has taken a keen interest in establishing work as significant criterion of managerial existence: some studies (e.g. May et al., 2004) report meaning in work as a method to foster an employee's motivation and attachment to work; whereas meaningless work is defined as apathy and detachment from one's work. Hence, the so called productive work is a result of finding meaning in work, which is also mostly connected to the nature of material incentives and subjective experiences. The latter ranges from self-esteem, security, dignity, whereas the objective meaning of work focuses on the importance and worthwhileness of work, and its contribution and purpose to society in general. Lips-Wiersma and Morris (2009) studied the distinction between managerial research, where meaningfulness of work is managed by leadership and organizational culture, and the literature/research in humanities, where meaningfulness of work is considered inherent in the work itself. They studied the process of uncovering meaning in both 'managing meaning' and humans' 'intrinsic will to meaning'. Our focus is solely the latter i.e. the 'intrinsic will to meaning', which is broader and all inclusive of the existence of life in the cosmos.

Work, Society, and Human Follies

Society is an organized form of human living arrived by means of an implicit social contract between individuals where individuals transfer their extraordinary power to state and gain order and other rights and privileges (Hobbes, Locke, Rousseau). Every society, from primitive to modern, has undergone the task of division of labour for the better distribution and smooth functioning of organized life. In ancient India, division of work was done on the basis of origin and descent of people, though it was originally meant to be based on the nature and characteristics (constituting *gunas*) of individuals and not descent. Eventually, the social system became rigid about the division based on origins of people. Modern society makes

division of work more heterogeneous and based on skill, competence and intelligence, though division of descent/caste is still maintained, serving certain other social functions like marriage.

Capitalism, the current prevalent economic system all over the world (with few exceptions), supported by scientific and technological advancements of the last three centuries, brought in the concepts of 'efficiency', 'competition', and 'perfection' in work. Efficiency pays for itself; the more efficient ones are seemingly better productive, and hence, better incentivized. Competition is an essential element in capitalistic economy. More material accumulations are considered preconditions to better living. The problem of competition in work is manifold in developing countries like India due to the burgeoning population and inadequacy as well as unequal access to the necessary resources like education and health.

The state provides many opportunities of employment. A vast majority prefers working for state run organizations mainly because of two reasons; guarantee for livelihood and security of job. However, the incentive structures of the state run organizations are inferior compared to the wealthy private organizations. Nevertheless, the inherent lapses in bureaucratic governance provide other opportunities for money making by unfair means and corrupt practices. Quality and perfection are always casualties in the state run organizations. In general, this condition exists today, particularly in government offices: the game of passing off the responsibility is played. Nothing moves except time, and nothing breeds except corruption.

The opportunities for work in post liberalized India has improved much with more and more multinational organizations expanding their business and creating job opportunities and scope for development. This, no doubt, has improved the economic and thereby living conditions of the people, but has given rise to problems of different dimensions. But competition in the spirit of capitalism has engulfed the entire population even more. People are engrossed in cut throat competition for more and better material gains and benefits. Work is equated with achieving targets at any cost, getting a hike and/or promotion, getting ahead of others in the race etc. In fact, the ground work for this paper started with a question from a conference audience about 'how I am supposed to be ethical when I am simply asked to meet the target'.

6. RESEARCH PERSPECTIVE: SPIRITUAL PHILOSOPHY OF ANCIENT INDIA AND 'MEANING OF WORK'

Indian civilization is one of the oldest and is also very vast. It has a very rich spiritual tradition that exhaustively explains and explicates the complete way of life for human beings. Unfortunately, these teachings have been neutralized in contemporary times because of various reasons. Two are prominent: (1) Some have represented Indian Spiritual philosophy as life negating and therefore ridiculing the empirical (*vyavaharika*) existence (2) interpretation of the same by few (special interest groups) has led to social discrimination and disharmony in society.

The ancient Indian spiritual thinkers have not only taken pains to detail minute problems of human dignity and rights, social justice and equality, but also macro social issues of economics, politics, environment and society. They have proposed comprehensive outlook of life. Spiritualism itself asserts the interconnectedness of the individual with the universal. A deeper and careful interpretation of the concepts can shed more light on not only the importance of the temporal nature of the world and human life but also the inseparable

integration of both the temporal and the transcendental and subjective and objective. We will make a sincere attempt to understand the meaning of work intertwined in three highly rich spiritual concepts of '*Purusharthas*' '*Niskama Karma*' and '*Lokasangraha*'.

(A) *Purusarthas*

Purusarthas literally means 'the goal' or more appropriately (as translated from *artha*) 'meaning of a human being'. *Purusha* in Sanskrit means 'human' (not man alone). *Purusarthas* or 'goal of human life' is a predominating topic in all major ancient Indian scriptures like *Vedas* and *Upanishads*, *Srimad Bhagvat Geeta*, *Manusmrti*, and so on. Most scriptures contend that of all creatures, humans alone are able and capable to conceive a goal in life and act according to that goal. This is been recognized by philosophers of various traditions (Greek: Socrates, German: Kant, Spinoza). The concept of *Purusarthas* provides an excellent conceptualization of the types and kinds of goals and also their order and conglomeration in which they are pursued by individuals. Interestingly, this attempt of objective projection of life goals does not at all ridicule the individual subjective experiences. Rather, these subjective experiences enrich the broader objectives.

Dharma, Artha, Kama, Moksha

We must not ignore the hierarchical order in *Purusarthas*: ascertaining a hierarchical order is important for explanation of their interrelation, and the final outcome. Sometimes, it is written as *Kama, Artha, Dharma, Moksha*. *Kama* is the desire and mostly instinctive and therefore it keeps humans in the same plane as other organisms until and unless it is regulated by the principles of *dharma*. The sense of right and justice is inherent in the notion of *dharma* and these senses are unique to human beings. *Artha* is the means of satisfaction of all human desires. It is for *artha* (incentive) people work and while working, they also try to find the *artha* (meaning) of life. Both *kama* and *artha* need to be regulated by the *dharma* to attain *moksha* i.e. the state of discriminative knowledge. We make a conscious attempt not to interpret *Moksha* as otherworldly.

Dharma is used in multiples sense. Two senses are more important to our discussion. In narrow sense, it is an individual's obligation and duty by virtue of being human, by virtue of the position one occupies, and by virtue of the life history. In its wider sense, *dharma* is the order and harmony in the society, world and cosmos. Other important sense of the use of the word *dharma* is *dhr-dharati* meaning anything that bear, uphold, and maintain the universe. *Adharma* is destructive of the order and the universe or uproots. *Samanya dharma* is the duties common to entire mankind. Our duty to sustain our own self is a *samanya dharma* and it is much like the instinctive desires. *Visesa dharma* is due to one's position and life stations. A doctor's *visesa dharma* is to treat a patient; a father's *visesa dharma* is to upbringing his children. A soldier's *visesa dharma* is to protect the territorial integrity of the country. The room for aspiration for '*artha*' proves the fact that life is not to be negated and *artha* is to be achieved to maintain the requirements of life.

Kama in the narrow sense is the most basic biological requirement, which humans share with any other organism. One predominant biological requirement is sex but it is often mistaken to be the only one. *Kama* is any desire due to the instinctive and biological nature. In the wider sense, *kama* includes the psychological desires which is inclusive of all sorts of human desires on and above the biological desires for food and sex. Desire for one's own *Moksha* (attain discriminative knowledge) to desire for a *sarvodaya samaj* (welfare society) is part of psychological desire.

Moksha literally means freedom from desires and thereby the consequences of the desires.

The important question people try to address is, if *Moksha* is this worldly or other worldly. How to understand *Moksha* when one cannot experience it in this life? What is important is *Moksha* is a state of the self that produces discriminative knowledge; knowledge that frees the self from its attachment to things outside the self as it is a human tendency to seek for happiness from things outside. *Moksha* is a state of mind or attitude of individual's mind that frees and liberates from all the bondages of self interest. It is achievable here in this world and people who have achieved this state have worked only for the good of the society, nation and the world. It is a discriminative knowledge.

Artha and *kama* cannot be pursued to the exclusion of *dharma*. Poverty, as long as it is removable, either by individual or collective effort, cannot be legitimized. Living in utter deficiency is against the order and harmony of the universe. Improving the conditions of living is as much the individual's responsibility as the responsibility of a welfare state. Eulogizing riches is another extreme. *Artha* is amassed with a very specific purpose of maintaining and sustaining but not for the sake of simply amassing. Some people amass for the pleasure of it; others amass by denying themselves the moderate comforts of life. Both abundance and absence of *artha* is problematic and disturbs the order of not only society but also of the cosmos. *Manusmṛiti* categorically proclaims that prosperity consists in and is achievable by all three together (political and personal must coincide).

(B) *Niskama Karma*

Niskama literally means 'desire-less karma'. There are many interpretations of what desire-less (bereft) means? It stands to be considered as an inconsistent doctrine in principle, as without desire there is no reason why one would act. Practically, it is the desire and the propensity for satisfaction of this desire that instigates people to work. Therefore, it is beyond ordinary understanding, how action can be desire-less? The desire that is talked about here is the outcome of the instinctive inclination of the self, which are mostly self directed and selfish. Negating desires would simply mean negating the pure selfish instincts in any work or activity and working or acting for the sake of common good and in accordance to *dharma*. There are two important things to keep in mind: (1) act we must, as that is our very nature. So act without the desire for results, frees us from the bondages which are outcome of the desire (2) there is an outcome of every act – it is part of the law of nature. But when we desire a particular outcome we try to condition our act to the outcome. But the act-outcome link is not a pure mechanical one, where the outcomes can be predicted of the act. The actual outcome may be purely independent of the desired outcome. We must condition the act to nothing, but its very nature of intrinsic good.

Act you must hence act for the common good or in coherence with the common good. If acting for the mere exclusion of the good of the self becomes a universal practice, is detrimental to the world order because each self's selfish desire may be conflicting with every other self's selfish desire.

(C) *Lokasamgraha*

Is human authority the ultimate justification for *dharma*? May not be; but the goal is clear. It is for the good of all but at the same time not at the cost of anyone. This concept restores the principle of justice and equality of all, and non discrimination (positive discrimination) of any disadvantaged section or group.

The Karma Yogis

An ancient and vast civilization of India has documented a vast heritage of human living. With progress in civilizations, human nature becomes more inquisitive; be it scientific, technological or spiritual. Civilizations in India have reached many peaks, of which, the spiritual enquiry is the most significant. In a spiritually developed society, there always existed a breed of spiritually conscious people, who took great satisfaction from their work; they lived simply but also learnt to feel from their heart and soul the real meaning of work; they lived this awareness through their works. Hence work became a physical, mental, vital, psychic, emotional, social and spiritual parameter as well. They did work for the sake of work; they lived entirely for the sake of work; they did not multiply their material desires: they became Karma Yogis because they did not compete to accumulate material, or bother to compare their accumulation with others. Rather, they also gave what they could to those who were in need. They did not bother about their so called market value and market efficiency, but kept performing and opened new and new horizons of awareness and fulfillment.

In the *Bhagvat Geeta*, work or Karma is given a lot of emphasis and is also considered to be one form of *yoga*, in whose *sadhana*, if one is engaged, it brings the doer of the *karma* closer to God. It also says that no one can actually remain actionless. *Karma* is inherent in *Prakriti*, the creative force, a combination of three *gunas* (*sattva*, *rajas* and *tamas*) from which everything has emanated. All creations are therefore helplessly bound by *karma*, as influenced by the constitution of their *gunas*. Vain is their wish and attempt to rid themselves of actions like eating, sleeping, beating of heart, breathing, as all these are nothing but *karma*. From the atom to the universe, all are engaged in activities of innumerable types. It is impossible for beings to renounce *Karma* while being entangled in *Prakriti*. Whatever *karma* one does, it builds a cumulative effect in the subtle world, and the results of that particular individual is stored in a latent or *apoorva* state. When the time is ripe the fruits of one's own *karma* start to fructify, good for good and bad for bad. Hence, the *Vedas* and the *Geeta* say that all that *Karma* which is born out of *Rita* like right conduct, aspiration, intention and ethics, creates a certain YAGYAN, and is upheld by the Lord of the Universe. If we have no knowledge or idea about the lord, then let us be satisfied in the fact that it is sustained and nurtured by the cosmic order.

One very good example for *Yagyan* of this kind, can be taken from the cosmos itself. Every day, the sun beats upon the sea, rivers, lakes, etc. It shines. In the process, water vapors are formed right in front of our eyes but we cannot see it. This is in the latent or *apoorva* state. However, when the result of the sun beating upon the water is near, we see clouds and then rain falls. The sun does its *karma* by shining, the water vapor is stored as a result and when the *Yagyan* is ripe, the rain falls. All this takes place through a process of *Karma Kaa Tapasya*, which forms *Yagyan*. Hence, if we do our *karma* born out of *Rita*, it is bound to take time, but we can be sure that it is sustained and upheld by the Cosmos and the results are bound to come.

What is more important in the doctrine of *Niskama Karma* is that it is not life negating, but negating desires, and thereby negating the sorrows born out of the desires. Understanding *Niskama Karma* is understanding the fact that goal of individual's life is in complete coherence with the goal of creation. It is due to the veil of selfish instincts of humans that majority do not realize this fact.

7. CONCLUSION: FUTURE IMPLICATIONS

The Indian Spiritual philosophy is not life negating; it is more to do with disciplining life. All our physical and psychological desires are valid but must be regulated to avoid disharmony in our social relationships, life and in the universe. It is required of individuals to make an assessment of their *dharma* in particular situations. Duties can be prioritized based on principles of justice and fairness, and not as mere outcomes of action. If utilitarian outcome is the only human value, then managers, who are asked to meet their targets, do so at any cost, compromising justice and fairness, and thereby disturbing the social and universal order.

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Why do People Sustain to Participate in the Community of Open Source Software: The Perspective of OSS Ideology

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ABSTRACT

This study proposes a conceptual model to investigate the influence of perceived ideology on sustained participation in the Open Source Software (OSS) community. The members of Open Source Software Foundry (<http://www.openfoundry.org/>), a well-known Taiwanese OSS community, were chosen to participate in the survey, and 111 usable responses were collected. Partial Least Square(PLS) regression were used to test the model, the finding show that community identification is the strongest predictor of sustained participation, following interpersonal trust. Furthermore, higher perceived OSS ideology such as OSS norm, OSS belief and OSS value are accompanied with higher positive community identification and interpersonal trust which influence the intention to sustained participate. Implications are proposed in the final section.

Keywords: OSS Community, OSS Ideology, Sustained Participation, Community Identification, Interpersonal Trust

1. INTRODUCTION

Due to the remarkable success in OSS(Open Source Software) communities, such as Linux and Apache, the community-based innovation have attracted an ever increasing amount of attention in recent years. It is also applied well in many different situations such as gene transfer technology, automobiles, video games, and communities within developing countries, for which software customization in local languages remains cost prohibitive (Economist, 2003). In contrast to the proprietary software models, OSS model relies neither on formal planning nor management structures that exist in traditional organization. The model is instead based on the open, voluntary, and collaborative efforts of participants. The open source, community-based model represents an alternative mechanism for software development that can potentially result in higher-quality software at lower costs when compared with proprietary approach (Raymond, 2001). Several study attempts have been made to explain this phenomenon as a reasonable result of the collaboration for purely self-interested, utility-maximizing individuals (Osterloh et al., 2002). The majority of the research conducted has focused on the motivation of OSS developers who participate in OSS

communities. For example, why should participants provide field support to other users for free when tasks are time consuming, mundane, and unlikely to gain prestige within the OSS community (Lakhani and von Hippel, 2003)? Rossi (2004) classified the different motivations to participate in an OSS community as either intrinsic or extrinsic. Intrinsic motivation be satisfied imply that basic human needs for competence, control and autonomy are assured. In contrast, extrinsic motivation stems from the external setting to the task and is usually applied by someone other than the person being motivated (Johns, 1996). Engaging in OSS communities to contribute source code for the sheer enjoyment is clearly an intrinsic motivation whereas being gained skill technology to participate is the quintessential extrinsic motivation. Drawing on theories of intrinsic and extrinsic, Roberts et al. (2006) combined with participant's knowledge, skill, and abilities, motivations influence their involving in OSS community as exemplified by the level of their contributions to the source code. Schofield and Cooper (2007) summarize 23 previous works in this field searching range from 1999 to 2006. They propose a framework that splits motivation into three categories including technological, economical, and socio-political.

1.1 Research Motivation and objective

As mentioned above, most research to date has tended to focus on confirming individuals' initial reasons for getting involved (Fang and Neufeld, 2009). Few study focus on the topic of sustained participation in OSS community which are critical role for the flourishing of OSS community. Research by Colazo and Fang (2009) also illustrated that the lack of insufficient long-term participation lead to nearly 80% OSS projects fading away during the developing processes of software. This phenomenon merits concern since it directly affects the long-term viability of OSS projects. As a consequence, researchers point out that the tenets of OSS ideology are shown not only have a positive impact on the trust and communication with the OSS project (Steward and Gosain, 2006; Chou and He, 2011) but also result in the creation of a social identification, increased the group cohesiveness of members, and differentiation oneself from other groups (Turner et al., 1987; Hogg et al., 1995). Therefore, we devote this empirical exploration to understanding how and why the OSS ideology influence members sustained participation in the OSS community.

2 LITERATURE REVIEW

2.1 Perceived OSS Ideology

Ideology is an appearance of culture that can be viewed as an organizational culture that influenced by the larger national culture in which it exists (Hofstede, 1980). In the context of OSS communities, such ideology attracts many users, drawing them to learn more about and use OSS initially and for maintaining their preference for, and engagement with, the software and the community. Trice and Beyer's (1993) definition of ideology as "shared, relatively coherently interrelated sets of emotionally charged beliefs, values, and norms that bind some people together and help them make sense of their worlds (p.33)". When belief, value, and norm coalesce over time into stable forms that constitutes an ideology, they provide insight into the explaining and justifying existing social systems. Through the OSS ideology, newcomers are taught the basic principles of the OSS community culture before they actually start participating (Bergquist and Ljungberg, 2001). OSS ideology is a multifaceted construct, encompassing three dimensions: OSS norms, OSS beliefs, and OSS values (Stewart and Gosain, 2006). *OSS norms* refer to community member's behaviors such as forking, distribution, and named credit are expected by others. *OSS beliefs* refer to understandings the causal relationship of process and freedom during OSS development. *OSS values* refer to expressing preferences for certain behavior of collaborative and individual from participating

in OSS project (Stewart and Gosain, 2006).

2.2 Community Identification

Community identification is specific form of social identification in which the individuals define themselves as a member of the community (Mael and Ashforth, 1995). The perspective of social identity originally stem from the fields of social psychology for group processes, intergroup relations, and self-concept. Its core assumption is that individuals accept influence from a particular social entity and view him- or herself as a member of that social organization (Boros, 2008). The basis of social identity is in the uniformity of perception and action among group member and focus on how the social context affects intergroup relations. Indeed, identification is a form of social construction deriving from repeated interactions with other organizational members (Wang et al., 2010). Identification may be essential to sustaining virtual organizations (OSS community) because it satisfies the need for social identity and self-definition and, in turn, has been shown to relate to positive organizational member loyalty (Mael & Ashforth, 1992) as well as organizational members' cooperative and citizenship behaviors (Bergami & Bagozzi, 2000).

2.3 Interpersonal Trust

Interpersonal trust can be defined as "the extent to which a person is confident in, and will to act on the basis of, the words, actions, and decisions of another" (McAllister, 1995, p. 25). In the context of knowledge creation and sharing, two dimensions of trust that facilitate the sustained participation in the activities of informal networks: benevolence and competence (Mayer et al., 1995). Benevolence is the perception of a positive orientation of the trustee toward the trustor. In the OSS community, people are likely to rely on the benevolence of members in determining the extent to which they are approaching about their lack of knowledge or answers. In addition, the trustor must also trust that trustee have highly competence in some technical area to offer solution (Abrams et al., 2003) Therefore, combining these ideas yields the critical of interpersonal trust to sustained participation in OSS community.

3 RESEARCH MODEL AND HYPOTHESES

Along cognitive, attitudinal and behavioral lines, the objective of this study is to explore how the members of OSS community form the community identification and interpersonal trust through the perceived OSS ideology, thereby affect their intention of continuously participating in the activities of OSS community. Figure 1 presents the conceptual model of this research.

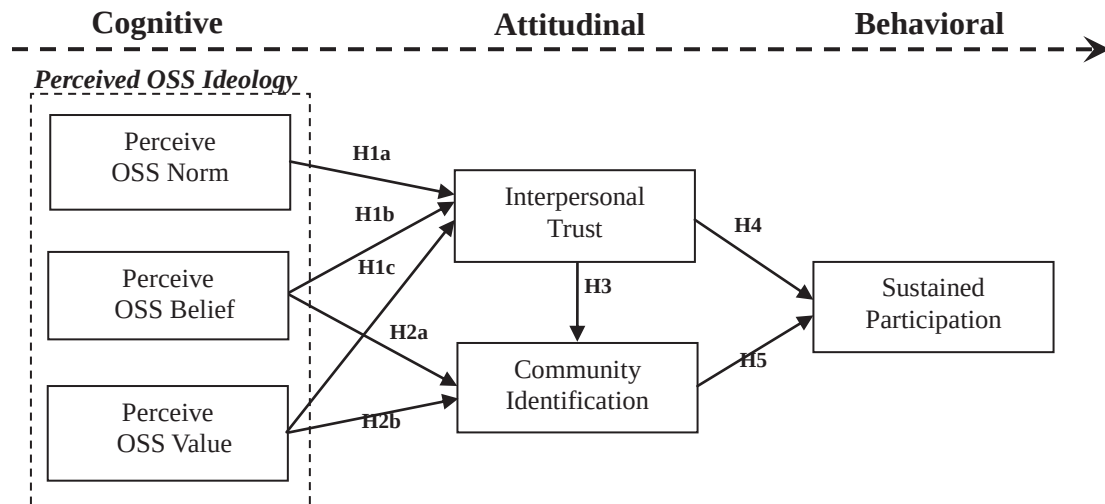


Figure 1. Conceptual Model

3.1 Perceived OSS norms, OSS beliefs, OSS values and interpersonal trust

Interpersonal trust is an essential element of virtual team for project participation and contribution among team members (Jarvenpaa and Leidner, 1999). In the OSS community, the formation of interpersonal trust comes from participants perceived other team members adherence to the ideology of OSS (in terms of OSS norms, OSS beliefs and OSS values). **OSS norms** mean that developer's interest was protected in order to assure they get credit for their work (*named credit norm*) and maximize the value of that work (*forking norm*) (Stewart and Gosain, 2006). **OSS beliefs** refers to participants realizing the outcomes that the *process* of OSS software development and the *freedom* to acquire information and software. Members perceive **OSS values** usually benefit from the perspective of *collaborative* and *individual*. *Collaborative values* imply that the members regard helping, sharing and cooperative as crucial things for the development of OSS projects. Besides, they also acquire *individual values* such as learning technology knowledge and reputation by collaboration with other members. As participants perceive other members adherence to the OSS value they more tend to believe that people who provides opinion or knowledge with regard to OSS questions (Stewart and Gosain, 2006). Therefore,

H1a: Participant perceived OSS norms are positively associated with his or her trust in OSS communities.

H1b: Participant perceived OSS beliefs are positively associated with his or her trust in OSS communities.

H1c: Participant perceived OSS values are positively associated with his or her trust in OSS communities.

3.2 Perceived OSS beliefs, OSS values and Community Identification

In addition to the interpersonal trust, participants perceive the OSS beliefs and values in a specific OSS community also affect their identification with the OSS community. Researchers posit that identification with social groups is derived from their functionality-group are identified with to the extent that they fulfill important needs of the member (Hogg & Abrams, 1988). Although participates joint initially OSS communities for different reasons, they may leave as the important needs After a period of time, their need was satisfied by collaboration with other members in an easy way. For instance, downloading a high-quality source code to solve the bottleneck of work, unraveling a tough question for someone then acquiring approve, getting an answer from other members. In such

a manner, the more benefit anticipates gets from the OSS community, the more identified with it will be (Ashforth and Mael, 1989). Therefore,

H2a: Participant perceived OSS values are positively associated with community identification.

H2b: Participant perceived OSS values are positively associated with community identification.

3.3 Interpersonal Trust and Community Identity

Interpersonal trust can increase participant's willingness to build on other's viewpoints, ideas, and expertise and reduce surmise about inaccurate knowledge (source code) (Argote et al., 2003). The OSS communities provide an environment for OSS development which is often characterized as a collective active comprising a series of informal discussion processes in order to carry out the requirement analysis, specification and validation (Kuk, 2006). These activities of virtual collaborative must base on the interpersonal trust for the sake of making judgment something that can contribute to the overall quality of the software (Bergquist, 2003). Of course, it could lead to the membership mean that entails the obligation for the individual programmer to follow internal rules, i.e. to publish the source code of his software (Bitzer and Schrder, 2006) thereby establishing the identification with OSS communities. Therefore, the interpersonal trust among OSS community participants might shape the identification with that community by exchanging the opinion or incompetence on the part of other members of the team. Therefore,

H3: Participant's interpersonal trust is positively associated with his or her community identification.

3.4 Interpersonal Trust and Sustained Participation

Interpersonal trust plays an important role in achieving goals in the context of virtual and temporary organizations. In OSS communities, the activity of virtual collaborative must base on interpersonal trust in order to make judgment something that can contribute to the overall quality of the software (Bergquist, 2003). From the knowledge management perspective, source codes are the form of knowledge asset, whereas OSS communities be regard as a place where can foster the production of source code. Interpersonal trust can increase participant's willingness to build on other's viewpoints, ideas, and expertise (Tiwana and McLean, 2005) and reduce surmise about inaccurate knowledge (source code) (Argote et al., 2003), thus facilitating the intention of sustained participation. Therefore, a climate of interpersonal trust among participants will motivate developers to join and continue with a project by reducing potential concerns of opportunistic behavior or incompetence on the part of other members of the team.

H4: Interpersonal trust is positively associated with sustained participation in OSS communities.

3.5 Community Identification and Sustained Participation

Community identification provides a psychological link between the organization and a dispersed individual thus facilitate coordination by promoting convergent expectations (Kogut and Zander, 1996). As the participants engaging in the OSS community over time, they gradually realize that who belongs, what their values are, and how important the community is to themselves (Etzioni, 1996), thus forming the intention of sustained participation in OSS community. That is, participants who develop a strong attachment to a

virtual community are more likely to provide assistance for others. Once the communities identification were formed, it is the expectation created within a community that people will behave in a predictable, appropriate and cooperative way according to norms shared by all the community's members (Muffatto, 2006b). Obviously, in the OSS community, the sense of identification with community becomes a powerful component of individual participation in OSS project (Hars and Ou, 2002). Hence,

H5: Participant's community identification is positively associated with his or her sustained participation in the activity of OSS community.

4 RESEARCH METHODOLOGY

In order to test the conceptual model in Figure 1 and the associated hypotheses proposed above, we adopted the survey method for data collection, and applied the partial least squares (PLS) method for data analysis. Our unit of analysis was the individual.

4.1 Data Collection and Measurement

The research model used empirical data collected from member of Open Source Software Foundry (<http://www.openfoundry.org/>), a well-known Taiwanese OSS community. The online survey yielded a total of 112 completed questionnaires. We checked the sample for consistency and dropped invalid responses, resulting in a total of 111 valid responses were collected and analyzed. All of them have participation in the activities of OSS community, as this was a selection criterion for inclusion in the sample. Based on the characteristic of OSS participants, more than seventy percent of respondents were male. Most OSS participants have a university (Bachelor's or Master's) degree; three have just a high school degree and only one have a PhD. The majority of the respondents are involvement with the OSS community below 1 year (45%), followed by 1-4 years (42.3%) and others over 4 years (12.75%).

4.2 Measurement development / operationalization of constructs

All constructs are measured by using multiple-item scales, measurement items were developed on the basis of a comprehensive review of the literature as well as expert opinion. The OSS ideology scale was adopted from Stewart and Gosain (2006). The sustained participation items were adopted from Roca et al. (2006). The community identification was modified from Zhang and Ke (2009). Finally, the interpersonal trust item was modified from He et al. (2009). In addition, all scale items were measured on seven-point Likert-type scales with scale poles from strongly disagree (1) to strongly agree (7).

5 DATA ANALYSIS AND RESULT

5.1 Measurement Model

The measurement model was evaluated in terms of convergent and discriminant validity. The convergent validity of measure items was assessed using criteria suggested by Fornell and Larcker (1981). All items factor loading should be significant and exceed 0.5. We drop items with insignificant factor loadings and low factor loading as compared to recommend 0.5 threshold. The factor loading of all remaining indicators are all significant ($p < 0.001$) and above 0.6. The value of average extracted variance (AVE) ranging from 0.62 to 0.87 above the 0.5 threshold, which indicates acceptable convergent validity, as shown in Table 1. Next, discriminant validity between constructs was assessed using Fornell and Larker's recommendation that the square root of the AVEs for each construct should exceed the

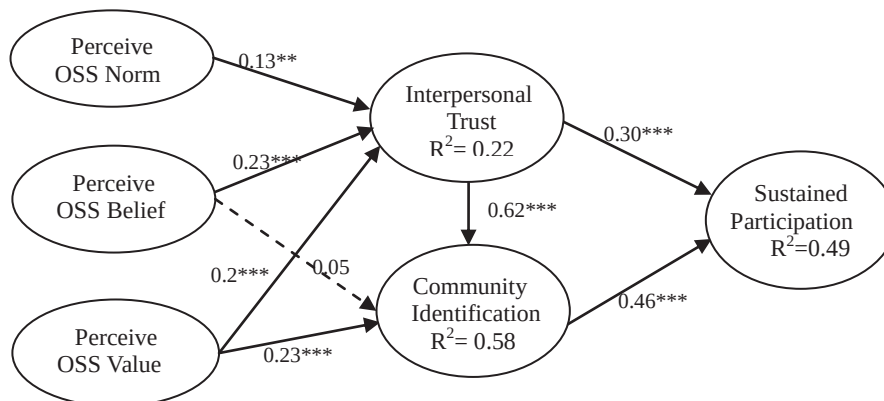
correlations between this construct and all the other constructs. In Table 1, the boldface numbers on the diagonals are the square roots of the AVEs. Off-diagonal elements are the correlation among constructs. All diagonal numbers are much greater than the corresponding off-diagonal ones, indicating satisfactory discriminant validity of all the constructs.

Table 1.

	CR	AVE	Cronbach's alpha	OSS-N	OSS-B	OSS-V	CI	IT	SP
OSS-N	--	--	--	--					
OSS-B	--	--	--	0.08	--				
OSS-V	--	--	--	0.14	0.63	--			
CI	0.91	0.62	0.87	0.05	0.44	0.49	0.78		
IT	0.91	0.67	0.87	0.16	0.39	0.37	0.72	0.82	
SP	0.93	0.82	0.89	-0.08	0.39	0.36	0.67	0.62	0.91

Note: OSS-N: OSS Norm; OSS-B: OSS Belief; OSS-V: OSS Value
CI: Community Identity; IT: Interpersonal Trust; OP: Offline Participation
SP: Sustained Participation

5.2 Structural Model and Hypotheses Testing



Note1: R^2 represents the variation explained in endogenous constructs.

Note2: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (Two-Tail Test).

Figure 2. Hypotheses Testing

We tested the conceptual model by using a bootstrapping analysis in the PLS method. The bootstrapping analysis was done with 500 re-samples, and paths were re-estimated using each of these re-sample. The results are shown in Figure 6. Our research model demonstrates good explanatory power, because the r-square value for the endogenous constructs range from .20 to .58. Most paths were statistically significant and satisfied Chin's (1998) recommendation that path coefficients exceed 0.2 in order to be deemed to exert a "substantial" impact. Overall, the model explained 49 percent of the variances in sustained participation, 58 percent in community identification and 22 percent in interpersonal trust.

6 DISCUSSION AND IMPLICATION

The result of this study intensifies the understanding of sustained participation in OSS communities and reveals that it is appropriate to consider that perspective of OSS ideology. Overall, the findings provide significant insights concerning the OSS ideology and its

measurement properties, and OSS ideology effects on variable of interpersonal trust and community identification. That is, the perception of OSS ideology shapes a coordination context where participants more easy to establish interpersonal trust and form the identification towards an OSS community. Contrary to our prediction, the findings show that higher perceived OSS belief does not significantly affect community identification. The plausible explanation for this finding is that nearly half of the respondents are involvement with the OSS community below 1 year. Due to the time limit, they cannot really perceive whether other member understanding the OSS beliefs in terms of the process and freedom during OSS development. Besides, finding of this study also provide practical implications for practitioners. Our recommendation that community manager should focus on creating an environment for fostering OSS ideology in order for participants to freely express their opinion and propose question. As with any study, this research has limitations. Collecting measures of multiple constructs through the survey which were subjective that was base on Likert-scale responses provided by participants.

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Unpacking the Construct of School Culture – The Case of Singapore Schools

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ABSTRACT

It is a generally held view that there is a strong link between school culture and school effectiveness. Clearly understanding the ‘school culture’ construct is paramount in unraveling the way educators perceive and perform (behave) in a school environment. The purpose of this study is to investigate the educators’ perceptions of school culture along five identified dimensions in a Singapore educational context. The five dimensions of school culture include: 1) Collegiality versus Independence; 2) High versus Low Hierarchy; 3) Strong versus Weak Nurturance; 4) High versus Low Academic Emphasis; and 5) People versus Task Orientation. Data was collected from four groups of respondents including 224 principals, 322 vice-principals, 686 key personnel (e.g., Heads of departments) and 3513 teachers using rating scales. To ensure validity of comparisons, analyses were done using linear Rasch measures in logits rather than the non-linear raw scores. The findings (through the use of ANOVAs and post-hoc tests) indicated that there are significant differences in the perceptions of the five dimensions of school culture between the four groups of respondents. Possible reasons for the findings include the influence of societal culture, value system and mindsets (e.g., Confucianism, pragmatism and performativity) that would have shaped perceptions of school culture in Singapore schools. The authors will discuss how the findings have implications on educational policymakers and practitioners, and how it further contributes to the theoretical framework of school culture in relation to school effectiveness and school improvement.

Key words: School culture; Asian influence; Asian society; Singapore school leaders and teachers

1. INTRODUCTION

As a consequence of globalization, many countries are embarking on educational reform in the bid to enhance the performances of their schools (McKinsey Report, 2007). Policy makers have acknowledged that the ability of countries, both developed and developing nations, to compete in the globalized knowledge economy is increasingly dependent on their capacity to meet the fast-growing demands for high-level skills. And, this hinges on how the countries are making significant progress in improving the quality of education of their people and providing equitable learning opportunities for all (Schleicher, cited in the McKinsey Report, 2007). In fact, the OECD Programme for International Student Assessment (PISA) aimed at evaluating the education systems worldwide every three years by assessing 15-year-olds’ competencies in the key subjects: reading, mathematics and science, has revealed that a number of countries have performed exceedingly well, and in fact, have continuously sustained educational excellence.

In the current global competitive context of education, Singapore has caught the eyes of many educational policymakers, educators and researchers around the world. It has

consistently done relatively well for both TIMSS (Trends in International Mathematics and Science Study) and PISA (Programme for International Student Assessment) results. The Singapore education system is also considered as one of the world's top performers that spends less on primary education than 27 out of the 30 countries in the OECD (McKinsey, 2007). The education system has also been ranked highly in terms of being "sustained improvers", and one out of five education systems which has been identified as being "Great" (McKinsey, 2010). In fact, the McKinsey Report (2007) has emphasized that the quality of a school system rests on the quality of its teachers, that is, high-performing school systems are focusing on fundamentally three aspects well:

1. Effective mechanism for teacher selection such that the right people are employed to become teachers (i.e., the quality of the education system cannot exceed the quality of its teachers);
2. Strong emphasis on ensuring teachers are professionally developed to be effective instructors (i.e., the best way to achieve excellent outcomes is to improve the instruction)
3. Effective systems and support structures are put in place to ensure that every student will benefit from the excellent instruction (i.e., the best way for schools to achieve the best performance is to raise the standard of every student).

The report emphasizes the fact that the above aspects demonstrate that best educational practices for achieving educational excellence in school systems. They demonstrate that the substantial improvement in school outcomes is possible in a short period of time, and that adopting these best practices universally can have significant impact in improving school systems, wherever they may be located (McKinsey Report, 2007).

And although the latter report emphasized the strategic nature of different intervention strategies used by different systems to improve, it alluded to the existence of contexts such as culture as a mediating variable in the successful implementation of the intervention strategies. It is therefore worthwhile to map out the cultural contours at least at the school level in which schools in Singapore functioned that support the intervention strategies employed.

Furthermore, school culture has been known to be one of the characteristics of effective schools in the school effectiveness and school improvement literature. School culture has been claimed to be a mediating variable which ultimately affect student achievement (Deal & Kennedy, 1994; Sarason, 1990; Stoll & Myers, 1997). Although the link between school culture and organizational effectiveness is somewhat obvious, school culture is still a concept needing clarity (Schoen & Teddlie, 2010). In this paper, we have chosen to adopt an eclectic approach to the definition of school culture. In this regard, we consider school culture as shared beliefs and values that closely knit a community together (Deal & Kennedy, 1982, 1983, 2000). We also subscribes to Schein's (1992) three levels of culture, which include 1) basic underlying assumptions, 2) espoused values, and 3) artifacts. Basic underlying assumptions are unconscious, taken-for-granted beliefs, perceptions, thoughts and feelings (ultimate source of values and action). Espoused values are strategies, goals and philosophies (espoused justifications). Finally, artifacts are visible organizational structures and processes (hard to decipher). A salient characteristic of school culture is its hidden-ness, which makes it powerful but yet difficult to be noticed. And in this sense, it is often neglected in educational practice and research.

In this study, we seek to first and foremost map out the cultural contours of school culture in Singapore schools. This has never been done before, even more so at the national level. This

study will also contribute to the further work on research into sharpening the conceptual clarity of school culture, which has lay dormant for sometime now.

2. THE CONCEPTUAL FRAMEWORK OF SCHOOL CULTURE

While the word ‘culture’ is a commonly used word in our everyday conversations, it is often under-utilized in the governance of societies and organizations. The fact is that the term culture can be a slippery and ‘hard to pin down’ concept (Smith, 2000). It encompasses ideas such as values, beliefs, knowledge, behaviors, habits, rituals, practices, artifacts and symbols which are common or shared among groups of individuals.

These ideas have varying amplifications in various fields of study such as anthropology, psychology, sociology and organizational study. Historically, the theme on culture in educational research has its roots in the work of Waller (1932), and its resurgence came back in 1970s (Maslowski, 2006). And only in the 1980s that culture became a major theme in organizational science and was widely recognized as an important feature in school functioning. Since the late 1980s, empirical studies have grown, beginning with qualitative followed by quantitative methodologies – the latter was accompanied by the development of questionnaires to measure the construct of school culture and its links to school effectiveness and school improvement (for details, see Maslowski, 2006).

The study of culture in education has been influenced greatly by Schein’s (1985, 1992) theorization of organizational culture. Schein (2010) considered organizational culture as one of the four categories of culture: 1) ‘Macrocultures’ (nations, ethnic and religious groups, occupations that exist globally), 2) Organizational cultures (corporate culture), 3) Subcultures (occupational groups within organizations), and 4) Microcultures (microsystems within or outside organizations). Among these, the second category has been used to study the internal cultures within schools (Schoen & Teddlie, 2010). Schein (2010) formally defined culture in organizations as

“a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 2010, p. 18).

Even though the above definition seems to single out the understanding of culture as assumptions, symbols or meanings, he did not rule out other aspects of culture, as expressed in his three levels of classification (Schein, 1985, 1992) – basic underlying assumptions, espoused values, and artifacts. Basic underlying assumptions are situated at the base level of Schein’s model. These assumptions are considered as a complex set of shared tacit understandings about the nature of things and the best ways to handle situations and problems taking place in organizations. These assumptions are usually unconscious and taken-for-granted granted beliefs, perceptions, thoughts and feelings. This level is considered to be the ultimate source of values and action. The next level of Schein’s cultural model consists of espoused values. Values can be considered as beliefs and attitudes that members of the group believe to be right or wrong. They are considered standards of desirability and reflect what is conceived to be important to pursue or worth striving for (Maslowski, 2006). The final level consists of artifacts which include visible organizational structures and processes. And although they are visible, they are hard to decipher. For example, symbols, rites, rituals, and myths evident in visible and audible behaviour patterns are evidently

present in cultural groups but are difficult to decipher (Maslowski, 2006).

Notwithstanding the influence of Schein's theorizing of culture in educational research, insights could be drawn from sociological theories. One such insight is the existence of power relations. For example, Swartz (1997) considers culture as embodying power relations in the form of dispositions, objects, systems and institutions. Furthermore, many cultural practices in advanced societies constitute relatively autonomous arenas of struggle for distinction. In the educational research context, the notion of power has also been accepted. Besides defining culture as the pattern of traditions, symbols, rituals, and artifacts characterizing a particular group of individuals, Gall et al. (1999) see culture as –

“a particular group of people to live together and thrive through a system of shared meanings and values, but that same system also may lead them to oppose or oppress groups with different shared meanings and values ... certain aspects of human culture have a particularly strong influence on individual and group life.” (p. 331)

While the preceding discussion provides greater clarity to the concept of culture, the definition of culture in education is still open to multiple interpretations. What was said by Deal and Peterson (1999) about the absent of a universally agreed upon definition of school culture in education remains true. In their review of school culture Schoen and Teddlie (2010) had also attested to the elusiveness of this construct. However, all is not lost. We propose that the construct on school culture to be scrutinized using psychometric lenses where intellectual efforts are channeled to arrive at a more parsimonious construct – a form of reductionism in order to distill the essence of the construct, albeit recognizing its multi-dimensionality. The proposition here is to remove all manner of semantic fluff to get to the substantive essence of the construct. For example, to define school culture as ‘the lens through which one views the world’ (Hargreaves, 1994) is consistent with Schein's (1985) notion of unconscious perceptions that influence people's values and actions. All in all, organizational culture has significant influence on the way individuals and groups interact with one another within the inner circles of the organization, as well as with others outside or beyond the organization (Kotter, 1992; Deal & Kennedy, 2000; Schein, 2004). It is important to note that, organizational culture exist in schools like any other organizations, such that there will certainly be an established set of shared mental assumptions that guide interpretations and actions of the school staff members by defining the appropriate behaviors for various circumstances at school (Ravasi & Schultz, 2006). In the last decade, educational researchers have been making efforts to investigate the impact of school culture in the context of the education system (see for example, Knutson, Miranda, & Washell, 2005; Maslowski, 2006; Schoen, & Teddlie, 2008). The following section discusses the construct and dimensions of school culture in the education context.

3. THE CONSTRUCT AND DIMENSIONS OF SCHOOL CULTURE

In this study, we defined school culture as the shared beliefs and values underlying the practices that members of a group or groups enact and the artifacts that they create in the school organization. Beliefs are understood as assumptions about the world. Values are understood as how one considers one's beliefs to be good, right and desirable, and vice-versa. Both beliefs and values are considered as abstractions and ideals insofar as they do not belong to the material world. Beliefs and values can exist in both the conscious or subconscious worlds of the individual. Practices and artifacts are the material effects of both beliefs and values. They include human actions such as routines and rituals, and created

objects such as flags or art pieces. This conceptualization of school culture becomes the substantive essence to the dimensions of school culture. It becomes the substantive content in the operationalization of the construct on school culture. This conceptualization is indeed consistent with the definition of culture in the generic or universal sense as construed by Schein (1985, 1992).

The preceding outlining of the definition of the construct on school culture begs the question – What is the big issue then? Why is the construct on school culture considered elusive in the first place? We propose that the issue is not so much to do with the definition of culture rather school culture. The assertion made by Schoen and Teddlie (2010) is an apt illustration to the issue at hand. They claimed that the term ‘school culture’ is –

“a context-specific branch of organizational culture and that accepted organizational theory, such as that of Schein, can help inform and interpret research on culture in educational organizations (e.g., schools).” (p. 137)

And in their attempt to borrow Schein’s levels of classifications of culture, they have created three distinctions to the understanding of school culture – school culture, school climate and symbols of culture which correspond to Schein’s levels of basic assumptions, espoused beliefs, and artifacts. While this elaboration and distinctions are worthy intellectual explorations, in our view it is yet another adding on to the mixing bowl. First and foremost, we find the distinction between school climate and school culture as artificial. Their distinction may at best be at the level of semantics. Second, it undermines the completeness in Schein’s original substantive conception of culture. Ontologically speaking, we are of the opinion that reality exists in two dialectical worlds – the ideal or abstract, and the physical. And Schein’s original conception on culture is highly cognizant of this distinction. Where we applaud is Schoen and Teddlie’s (2010) attempt at formalizing the four dimensions of school culture, but with a caveat. They comprise the following: 1) Professional orientation, 2) Organizational structure, 3) Quality of the learning environment, and 4) Student-centered focus.

We propose that the issue that has been raised on the elusiveness of the definition of school culture is more to do with the aspects of school culture rather than the construct of school culture. While a more parsimonious definition of culture was presented earlier, what then needs to be done is to establish the aspects of school culture where the shared beliefs and values manifested in practices and artifacts. The four dimensions, or rather aspects, that Schoen and Teddlie (*Ibid*) had formalized contained in themselves cultural beliefs and values manifesting in practices and artifacts. And in the instrumentation of the school culture construct such as in a questionnaire, items within these aspects are embedded cultural beliefs, values, practices and artifacts. For example, within the *Student-centered focus* aspect, items could include: i) Teachers in this school believe that every child should not be left behind (*belief*), ii) Teachers in this school should provide sufficient remedial to low ability pupils (*values*), iii) Teachers in this school make use of differentiated teaching strategy to meet the diverse learning ability of pupils (*practices*), and iv) Our school motto speaks about maximizing the potential for every child (*artifacts*).

The distinction between dimensions and aspects is not a matter of semantics or a play on words. The key proposition is that while a dimension is about the constitutive element that makes up the construct, an aspect is the context in which the construct manifest itself. In the illustration above, the cultural beliefs, values, practices and artifacts manifested themselves in

the *Student centered focus* aspect. The next question that begs answering is, “Is culture a single or multi-dimensional construct?” What we postulate is that it is a multi-dimensional construct as theorized by Schein, and his three levels of categorization can be considered as dimensions of culture. The following question then ensues, “What are the aspects of school culture?” And in this regard, we draw on the literature review provided by Maslowski (2006) to aid us in the construction of the instrument to measure school culture in Singapore schools. Although Maslowski (2006) concluded that most instruments that were reviewed demonstrate a normative approach to organizational school culture as based on school effectiveness and school improvement models, we consider this to be helpful still in our theorization of the different aspects of school culture in Singapore. Maslowski (2006) identified five common scales that have more or less common features across several scales – teacher collaboration, collegiality, efficacy, professional development, and academic orientation towards student learning.

Based on the discussion above, and notwithstanding the distinction that has been raised between dimensions and aspects of school culture, we too have decided to adopt the normative framework in establishing the dimensions for the school culture instrument. We propose that this pragmatic approach would not only extend the current work on school culture within the framework of school effectiveness and school improvement, but also provide a theoretical framework that directly impact school improvement processes. We are also open to the idea that these dimensions on school culture may have a substantive essence in its own right. And based on our critical analysis of the literature review, the following dimensions were identified: 1) Collegiality versus Independence, 2) High versus Low Hierarchy, 3) Strong versus Low Nurturance, 4) High versus Low Academic Emphasis, and 5) People versus Task Orientation.

4. PURPOSE OF STUDY

This study has three major purposes. Firstly, it is important for us to better understand how different levels of educators (i.e., Principals, Vice-Principals, Middle-level managers and Teachers) in Singapore perceive their school culture. Thus far there has not been any empirical study to map out the school culture in Singapore schools nation-wide. Secondly, this study seeks to validate the school culture instrument developed in this study using Rasch analysis. The instrument was developed based on 5 dimensions, namely Collegiality versus Independence, High versus Low Hierarchy, Strong versus Weak Nurturance, High versus Low Academic Emphasis and People versus Task Orientation. Thirdly, the study seeks to explore possible explanations to the successes of the Singapore education system insofar as how school culture plays a mediating role to school improvement outcomes. The following section briefly describes the dimensions of school culture of the Singapore education context

5. THE DIMENSIONS OF SCHOOL CULTURE – THE SINGAPORE CASE STUDY

Collegiality versus Independence

On the one hand, collegiality concerns the relationship between colleagues⁸ in the workplace. In such cases, the colleagues are those who are explicitly united in a common purpose and respecting each other's abilities to work toward that purpose in the organization. In other words, collegiality can connote respect for another's commitment to the common purpose and

⁸ A colleague may be an associate in a profession or in a civil or ecclesiastical office. Sometimes colleague is taken to mean a fellow member of the same profession.

ability to work toward it. On the other hand, for the purpose of this paper, the term *Independence* is used synonymously with the term *individualism* as it concerns the moral stance, political philosophy, ideology, or social outlook that stresses "the moral worth of the individual". Individualists promote the exercise of one's goals and desires and so value independence and self-reliance while opposing external interference upon one's own interests by society or institutions such as the government (Encyclopedia Britannica, 2012a; Free Dictionary, 2012).

Hierarchy (High versus Low)

A hierarchy is a form of social structure in which a linear or nearly linear ranking exists, with each entity dominant over those below it and submissive to those above it in the hierarchy (Encyclopedia Britannica, 2012b). Furthermore, a hierarchy can link entities either directly or indirectly, and either vertically or horizontally. The only direct links in a hierarchy, insofar as they are hierarchical, are to one's immediate superior or to one of one's subordinates, although a system that is largely hierarchical can also incorporate alternative hierarchies.

Incidentally, one may note that the notion of hierarchy in a formal social or organizational setting has elements of power play between members of the group. Hofstede (1994) has identified such a relationship as power distance. It is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally. Essentially, power distance is about the way people perceive power differences. Cultures that endorse low power distance expect and accept power relations that are more consultative or democratic. People relate to one another more as equals regardless of formal positions. Subordinates are more comfortable with and demand the right to contribute to and critique the decision making of those in power. In high power distance cultures, the less powerful members accept power relations that are more autocratic and paternalistic. Subordinates acknowledge the power of others simply based on where they are situated in certain formal, hierarchical positions (Hofstede, 1984).

Nurturance (Strong versus Weak)

Nurturance (a form of social support) concerns the perception and actuality that an individual is cared for, has assistance available from other people, and that one is part of a supportive social network (Wills, 1991). Broadly speaking, nurturance in the social context may be in the form of emotional support (e.g., affectionate care and attention), tangible (e.g., financial assistance, material goods and services), personal skills and knowledge (e.g., professional development to help the growth or development of the individual in the workplace; informational (e.g., provision of advice, guidance, suggestions to help others in problem solving), or companionship (e.g., sense of belonging). Social support can be measured as the perception that one has assistance available, the actual received assistance, or the degree to which a person is integrated in a social network.

Academic Emphasis (High versus Low)

Academic emphasis concerns the disposition toward developing or demonstrating ability in achievement situations based on academic performance. In the context of the school environment, the essence of academic socialization may be prevalent in which it concerns the way educators may influence students' academic achievement by shaping their learning (which in turn, will have impact on their current and future skills, behaviors and attitudes) towards school and education. Not surprising, in many Asian countries, the governments have placed much emphasis in the development of their people through comprehensive educational reforms and interventions school to enhance the quality of their education

systems (McKinsey Report, 2007; 2010).

People versus Task Orientation

Task-oriented (or task-focused) leadership is a behavioral approach in which the leader focuses on the tasks that need to be performed in order to meet certain goals, or to achieve a certain performance standard. Task-oriented leaders focus on getting the necessary task, or series of tasks, at hand in order to achieve a goal. These leaders are typically less concerned with the idea of catering to employees, and more concerned with finding the step-by-step solution required to meet specific goals. They will often actively define the work and the roles required, put structures in place, and plan, organize, and monitor progress within the team (Yukl, 2010).

People-oriented (or relationship-focused) leadership is a behavioral approach in which the leader focuses on the satisfaction, motivation and the general well-being of the team members of the organization. Relationship-oriented leaders are focused on supporting, motivating and developing the people on their teams and the relationships within. This style of leadership encourages good teamwork and collaboration, through fostering positive relationships and good communication. Relationship-oriented leaders prioritize the welfare of everyone in the group, and will place time and effort in meeting the individual needs of everyone involved. This may involve offering incentives like bonuses, providing mediation to deal with workplace or classroom conflicts, having more casual interactions with team members to learn about their strengths and weaknesses, creating a non-competitive and transparent work environment, or just leading in a personable or encouraging manner (Yukl, 2010)

6. METHODOLOGY

The variable investigated in this study is perception of school culture. School culture is divided into its main components and they are (a) perceptions of Collegiality versus Independence, (b) perceptions of High versus Low Hierarchy, (c) perceptions of Strong versus Weak Nurturance, (d) perceptions of High versus Low Academic Emphasis and (e) Perceptions of People versus Task Orientation. This is to compare the mean measures of these dimensions across the 4 groups of educators (i.e., Principals, Vice-Principals, Middle-level managers and Teachers). Rasch analysis is used for the determination of the measures on each of these components. In order to calibrate all the dimension on a common measurement scale, the dimensions were first put together for the 'global' Rasch run. The next step is data cleaning. Once we have the final cleaned data, the item measures were used as anchors in the measurement of the 5 separate components. This approach is in fact common persons equating.

Instrument

The instrument was developed for this study to measure educators' perceptions of school culture. The instrument consists of statements on perceived school culture on the respective components, with 8 items for each of the 5 components (see Appendix 1). The respondents were asked to check one of the following responses in surveys: '1=Strongly disagree'; '2=Disagree'; '3=Neutral'; '4=Agree'; or '5=Strongly agree'.

Sample

This is a nation-wide study. In total, there were 224 Principals, 322 Vice-Principals, 686 Middle-level managers and 3513 teachers. For the middle-level managers groups, it is made up of Heads of department, subject heads and level heads.

Data Analysis

There is a need to ensure that any comparisons of the perceptions measures are not contaminated by scaling problems and problems of the non-linearity of the raw responses. For this reason the rating scale is calibrated using Rasch analysis which puts all respondents on to one common scale of measure. This will enable comparisons to be made of perception measures across the two different cultures, and across the four different groups of educators on each perception of school culture component. No rating scale data collected from respondents should be assumed to be 'clean' data as there is always the likelihood of items not fitting the construct being investigated and of respondents 'misbehaving' during responding, rendering them mis-fitting. For proper instrument calibration, the data must therefore first be cleaned.

Rasch analysis was run and the fit statistics were examined and mis-fitting persons were removed. Persons flagged out as mis-fitting are those whose responses to some items are unexpected, and this may be due to reasons that include a lack of motivation to be consistent, or being dishonest in responding, or responses based on extremity bias. For each of the components analyzed, removal of persons was made on the basis of large z-standardized mean squares. Wright and Stone (1979) stated that in their practical experience, rejecting persons with a normal deviate (fit statistic) of about 2 is "unnecessarily conservative" (p. 168). It would appear to be even more conservative for rating scales on perception measures since it should not be too surprising how perceptions may shift from one item to the next as a person goes through the whole rating scale. Nonetheless, in the interest of ensuring clean data, all persons with either or both the z-standardized infit and outfit mean squares of more than 3 as well as large residuals, were considered for removal. After the first run, 25 teachers and 1 middle-level manager were deemed misfitting and removed for further analyses. No items were mifitting. The second and final run of Rasch analysis was made using the remaining available persons in the data matrix for each of the five components of school choice. For the person measures obtained, the respondents were sorted out into their various categories and their mean measures calculated.

It is useful to note that the use of Rasch analysis enables us to determine their separation reliabilities and the validity of each item (and hence the instrument) through an examination of the item infit and outfit mean squares. The problem with the traditional use of Cronbach alpha is that it is a norm-referenced coefficient which will therefore shift based on which sample or population it is tested on. A separation reliability tell us how best the instrument is able to separate between persons who differ on their measures of the variable in question, and simultaneously informs us how best the items are separated to cover different aspects of the variable in question. In this study, item-separation reliability is 1.00 and person-separation reliability is 0.54 (Table 1). This means that the items were well targeted and shows a good spread of "easy and difficult to agree-to" items. The respondents (as a cohort), on the other hand, were more homogeneous in their perceptions.

Table 2 Item and Person Separation Reliabilities

SUMMARY OF 4719 MEASURED PERSONS

	RAW SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD
MEAN	132.2	40.0	.37	.19	1.01	-.5	.99	-.6
S.D.	8.9	.0	.31	.00	.68	2.9	.68	2.9
MAX.	168.0	40.0	1.80	.23	4.56	9.6	5.85	9.9
MIN.	93.0	40.0	-.94	.18	.14	-6.8	.13	-6.9
REAL RMSE	.21	ADJ.SD	.23	SEPARATION	1.09	PERSON RELIABILITY	.54	
MODEL RMSE	.19	ADJ.SD	.25	SEPARATION	1.33	PERSON RELIABILITY	.64	
S.E. OF PERSON MEAN	= .00							

PERSON RAW SCORE-TO-MEASURE CORRELATION = 1.00
CRONBACH ALPHA (KR-20) PERSON RAW SCORE RELIABILITY = .63

SUMMARY OF 40 MEASURED ITEMS

	RAW SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD
MEAN	15592.1	4719.0	.00	.02	.99	-.1	.99	.1
S.D.	2781.2	.0	.77	.00	.20	7.6	.21	7.7
MAX.	19178.0	4719.0	1.62	.02	1.37	9.9	1.41	9.9
MIN.	9706.0	4719.0	-1.07	.02	.64	-9.9	.63	-9.9
REAL RMSE	.02	ADJ.SD	.77	SEPARATION	43.00	ITEM RELIABILITY	1.00	
MODEL RMSE	.02	ADJ.SD	.77	SEPARATION	44.48	ITEM RELIABILITY	1.00	
S.E. OF ITEM MEAN	= .12							

UMEAN=.000 USCALE=1.000
ITEM RAW SCORE-TO-MEASURE CORRELATION = -1.00

7. FINDINGS AND DISCUSSIONS

The findings show that all the dimensions of school culture from all respondents are positive with the exception of the dimension on 'Nurturance' (see Table 2). The school culture in Singapore schools can be characterized as being more collegial than individualistic, generally hierarchical, having high academic emphasis, and are more people than task oriented, but weak in nurturance. The findings also show that there are significant differences in the perceptions of the five dimensions of school culture between the four groups of respondents.

Table 3 ANOVA and Post-hoc Tests

Dimensions of School culture	(1) Principals (N=224)	(2) Vice Principals (N=322)	(3) Key personnel (N=686)	(4) Teachers (N=3513)	<i>F</i> ^a	<i>P</i> Sig.	Post-Hoc Test by Pairwise comparisons (<i>p</i> <0.05)
	Group means (Std dev)	Group means (Std dev)	Group means (Std dev)	Group means (Std dev)			
Collegiality	1.220 (0.99)	1.103 (0.89)	0.749 (0.87)	0.639 (0.90)	52.034	.000***	1, 2 > 3, 4 3 > 4
Hierarchy	0.058 (0.29)	0.107 (0.29)	0.073 (0.30)	0.039 (0.28)	7.798	.000***	2, 3 > 4
Nurturance	-0.107 (0.29)	-0.045 (0.29)	-0.015 (0.27)	-0.021 (0.27)	8.121	.000***	3, 4 > 1
Academic Emphasis	0.829 (0.49)	0.691 (0.50)	0.588 (0.51)	0.454 (0.49)	65.940	.000***	1, 2 > 3, 4 1 > 2 3 > 4
People Orientation	0.237 (0.32)	0.132 (0.30)	0.098 (0.24)	0.054 (0.24)	48.593	.000***	1, 2, 3 > 4 1 > 2, 3

^a Df = 3; * *p*<0.05, ** *p*<0.01, *** *p*<0.001

Collegiality versus Independence

The ANOVA results from Table 2 revealed that there are significance differences in perceptions concerning the first dimension of *Collegiality* between the 4 groups of respondents ($F=52.034$; $P=0.000$). This could suggest that the four groups of respondents have differing views concerning the extent of working relationship between colleagues in the workplace. Post hoc comparisons with Tukey HSD⁹ ($p<0.05$) revealed there are significant differences between the Principals and Vice Principals having higher mean scores than the Key Personnel and Teachers. Also, Key Personnel has higher mean score than Teachers. However, there are no significant differences between the Principals and Vice Principals.

High versus Low Hierarchy

The ANOVA results also revealed that there are significance differences in perceptions concerning the second dimension of *Hierarchy* between the 4 groups of respondents ($F=7.798$; $P=0.000$). This could suggest that the four groups of respondents have differing views concerning the arrangements within the social structure in which a linear or nearly linear ranking exists, with each entity dominant over those below it and submissive to those above it in the hierarchy. Post hoc comparisons with Tamhane¹⁰ ($p<0.05$) revealed there are significant differences between the Vice Principals and Key Personnel having higher mean scores than Teachers. However, there are no significant differences between the Principals and any of the other 3 groups of respondents.

Strong versus Weak Nurturance

The ANOVA results revealed that there are significance differences in perceptions concerning the third dimension of *Nurturance* between the four groups of respondents ($F=8.121$; $P=0.000$), albeit negatively rated for all the four respondent groups. This may suggest that the four groups of respondents have differing views concerning the perception and actuality that an individual is cared for, has assistance available from other people, and that one is part of a supportive social network. Post hoc comparisons with Tamhane¹¹ ($p<0.05$) revealed there are significant differences between the Key Personnel and Teachers having higher mean scores than the Principals. However, there are no significant differences between the Vice Principals and any of the other 3 groups of respondents.

High versus Low Academic Emphasis

The ANOVA results revealed that there are significance differences in perceptions concerning the fourth dimension of *Academic Emphasis* between the four groups of respondents ($F=65.940$; $P=0.000$). This may suggest that the four groups of respondents have differing views concerning the disposition toward developing or demonstrating ability in achievement situations based on academic performance. Post hoc comparisons with Tukey HSD¹² ($p<0.05$) revealed there are significant differences between the Principals and Vice Principals having higher mean scores than the Key Personnel and Teachers. There are also significant differences between 2 pairs of respondents: the Principals' mean score is higher than Vice Principals' mean score; and Key Personnel's mean score is higher than the Teachers' mean score.

⁹ Test of Homogeneity of Variances for the Dimension of Collegiality was not significant .911.

¹⁰ Test of Homogeneity of Variances for the Dimension of Hierarchy was significant .001.

¹¹ Test of Homogeneity of Variances for the Dimension of Tamhane was significant .000.

¹² Test of Homogeneity of Variances for the Dimension of Collegiality was not significant .911.

People versus Task Orientation

The ANOVA results revealed that there are significance differences in perceptions concerning the fifth dimension of *People Orientation* between the four groups of respondents ($F=48.593$; $P=0.000$). This could suggest that the four groups of respondents have differing views concerning this particular dimension. Post hoc comparisons with Tamhane¹³ ($p<0.05$) revealed there are significant differences between the Principals, Vice Principals and Key Personnel having higher mean scores than Teachers. There are also significant differences between the Principals having higher mean scores than Vice Principals and Key Personnel.

8. DISCUSSION

The characteristics of school culture in Singapore as shown from the findings are generally coherent and consistent with the descriptions of Singapore education system and societal culture. As a nation state, Singapore is essentially an Asian society comprising a majority of Chinese (74%), minority groups of Malays (13%) and Indians (9%), and 'Others' (4%) including Eurasians (Asian and European descents). Chua (1995) described the Singaporean society as a form of Confucian communitarianism (p. 32) where society is not dependent on the ambition of personal individualism, rather on the responsibilities of cohesive structures such as communities and families. Confucian communitarianism is more of a socio-political than an economic structure, and emphasizes the importance of community in establishing and maintaining a political unit or power (de Barry, 1998). As such it gives a premium on the value of collectivism which dearly embraces values of relating, harmonizing and integrating. And as schools have been key social sites for the transmission of such values since its independence in 1965, such collectivist ideals have been strongly promoted in schools nation-wide. The founding leader of modern Singapore, Lee Kuan Yew, has once commented in his address to school leaders in 1966 (Lee, 1966) that schools play a key role in promoting appropriate national values which family structures were unable to do then as Singapore comprised a majority of migrants coming from diverse homelands. It is therefore not surprising to find that collegiality stood out in the research findings.

Another closely related notion to Confucian communitarianism is the value for hierarchy and respect for authority, which is closely tied to paternalism, which reside in the psyche of the Singaporean people. Also, this cultural value is not absent in the psyche of minority groups as they too cherish respect for hierarchy, authority and paternalism. Lee (1996) emphasized the value for hierarchy by stating his belief in a pyramidal structure of society where elites lead the nation, middle strata executives who coordinate the ideas of the elites, and the broad mass who are disciplined, civic-conscious and economically useful in putting into practice policies conceptualized by elites. The elites locate their authority and legitimacy by virtue of their strength, robustness, ruggedness, stamina, endurance, great intellectual discipline and humility and love for the community and country. This is consistent with Confucian ideals of social and political ethics. This hierarchical administration has since been the foundation in all public or quasi-public institutions in Singapore, including public schools.

This hierarchical social and political ordering is not solely motivated by ethnic group cultural and social values, but equally important by economic pragmatism. Singapore, a small island state with little natural resources, was forced to leave its union with Malaysia in 1965, and was therefore forced to become independent over a short period of time. The need to become economically independent with nearly no natural resources provided the justification for the

¹³ Test of Homogeneity of Variances for the Dimension of Tamhane was significant .000.

state to adopt a hierarchical social and political ordering and control. Singapore pragmatic value for efficiency and need for control in order to attain efficiency has been observed by both foreign and local commentators – *strategic pragmatism* (Schein, 1996), and *economic pragmatism* (Hairon, 2006). Pragmatism as an ideological system has therefore been successful at enabling the state to lead the population (Chua, 1995). Also, Singapore has been described as a neo-Gramscian hegemonic state – corporatist, authoritarian, oligarchic and elitist, and ‘depends for its reproduction and continuity on strong, balanced forces of both coercion and consent’ (Worthington, 2003, p. 248). As schools in Singapore are important social sites for the transmission of national values, the findings in the study that highlighted hierarchy as an aspect of school culture is therefore not surprising.

Another Confucian heritage is the value for education. This has close and strong links to meritocratic ideals promoted by the state. In Singapore, meritocracy which is highly based on examinations has become the foundation for social cohesion. It dictates how individuals in the society are to be rewarded – i.e., allocation of resources is highly based on performance in examinations and qualifications. For example, the Primary School Leaving Examination (PSLE) at Year 6 determines the streams or tracks (Express, Normal Academic and Normal Technical) that students will be placed for the next four to five years of their education, after which another national examination to determine their higher education opportunities. Further, these examinations are placement in nature, and hence, students are usually not able to repeat these examinations. School teachers and leaders, and parents, are all fully aware of the impact of these high stakes examinations on students’ future well-being, and hence the prominence of the dimension on academic achievement in the findings on school culture.

The negative mean scores on nurturance can be attributed to two reasons. First, it is a common fact that schools are busy places where both school teachers and leaders daily cope with the increasing and diverse demands placed on schools by multiple stakeholders. And in such work environment, getting things done is more important than developing people or looking into their needs. This resounds squarely with pragmatism, which is the second reason. Pragmatism dictates that performance and productivity supersede development insofar as the former requires lesser amount of resources but produces more and faster results. Hence, it can be said that economic pragmatism is also mirrored in school work order.

What we find surprising is people orientation scored higher than task orientation in the description of Singapore school culture. While it is expected that task-orientation would be more consistent with pragmatism and economic pragmatism, schools in Singapore has been described as having more degree of people orientation over task-orientation. Nevertheless, this does not mean that task-orientation is not valued or present in Singapore schools. The existence of emphasis on people orientation could be result of the education ministry’s effort at ‘work-life balance’ over the past few years as a response to the increasing demands placed on schools.

With respect to the findings comparing mean scores across respondent groups (principals, vice-principals, key personnel and teachers), there is a general trend that teachers have statistically lower mean scores than school leaders (principals, vice-principals and teachers). This could suggest that school leaders have more experience and knowledge than teachers on school matters, and therefore are able to provide a truer sense of the realities of school culture. For example, teachers are generally much less aware of the micro politics that take place at the middle management, school leadership or district leadership levels. In nearly all cases, a school principal would have started as a teacher, and then is progressively promoted as a

department heard, vice-principal, and finally a school principal. However, it could also suggest that teachers are more aware of ground level realities as they are the eventual implementers of the curriculum, and thus score lower than school leaders who are less cognizant of ground realities. Another possible explanation to the difference of mean scores between school leaders and teachers is that of mismatch of expectations. Both groups may have a different content or degree of expectations or standards for the myriad aspects of educational outcomes and processes. This mismatch could suggest a lack of communication between school leaders and teachers with regard to educational expectations of outcomes and processes. Finally, the degree of accountability could be contributed to the difference between the mean scores. For example, principals and vice-principals are reported to have higher mean scores than key personnel and teachers. This is because school principals and vice-principals, especially the former, are more accountable – morally and formally, to the school key stakeholders on students' learning outcomes. The difference in the perceptions on school culture across respondents' groups essentially concurs with the fact that school culture is contested and it does embody power relations (Swartz, 1997).

9. CONCLUSION

In this paper, we have mapped out the descriptions of the Singapore school culture using an instrument that measures five dimensions consisting of collegiality/independence, high/low hierarchy, strong/weak nurturance, high/low academic emphasis, and people/task orientation. We have found that Singapore schools are characterized as valuing collegiality, hierarchy, academic emphasis and people orientation, but lacking in nurturance. We also found that there are differences in how different respondent groups especially between school teachers and leaders in the way they perceived the realities of their school culture. We have also provided explanations to the findings that highlighted the role of wider societal culture shaping school culture, correspondingly how macrocultures effectively influence organizational cultures (Schein, 2010). At this juncture, we found that we have more questions that surfaced as a result of our findings. Is the school culture instrument that we have built complete? Can the five dimensions be considered constitutive elements of the construct, or they just aspects of the construct? Are the current characteristics of the Singapore school culture, as described within the theoretical framework of the five dimensions, a harbinger of good things to come with respect to policies that encourage school-based curriculum development and innovation, and school-based professional learning such as professional learning communities (PLCs).

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Business II

Room 608 09:00-10:30, March 17

Session Chair: Dr. Oren Dayan

317

Using Guerrilla Marketing Strategies to Improve Brand Equity

Dayan Oren | *University of the Witwatersrand*

Jennifer Baltazar | *University of the Witwatersrand*

120

Economic Design of CCC Control Charts with VSI/VCL Scheme For High-Quality Processes

Yan-Kwang Chen | *National Taichung University of Science and Technology*

Chih-Teng Chen | *National Taichung University of Science and Technology*

167

Applying ANNs on Exploring Constraints to Museum Attendance

Fei-Rung Chiu | *Overseas Chinese University*

Yan-Kwang Chen | *National Taichung University of Science and Technology*

Hong-Sheng Wu | *National Taichung University of Science and Technology*

206

Supplier Relationship Management to Performance Improvement in MRO Purchasing Case Study: Airline industry in Thailand

Noppadol Suwannasap | *Rangsit University*

Montalee Sasananan | *Thammasat University*

115

Past Performance and Executive Compensation: Evidence from Indonesia

Taufiq Arifin | *Universitas Sebelas Maret*

387

How Leaders' Values Influence their Strategic Making in the Music Industry: A Case Study of a Taiwanese Live House Manager

Wen-Yi Wang | *Yuan Ze University*

Kang-Ning Xia | *Yuan Ze University*

390

The War of Unit And Number: How Do Units Affect Consumers' Product Evaluations?

Szu-Yin Li | *National Cheng Kung University*

Yi Sheng Goh | *National Cheng Kung University*

USING GUERRILLA MARKETING STRATEGIES TO IMPROVE BRAND EQUITY

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ABSTRACT

User-generated content (UGC) is a greatly functional Web 2.0 application, whereby content participation is necessary to engage and encourage participation to improve brand equity. In the present study, a theoretical model developed by Keller (2008) was implemented to explore the effectiveness of guerrilla marketing campaigns by using UGC to enhance brand equity. Results suggest that by identifying the most important guerrilla marketing strategies and their associated strategies through UGC, brand equity will increase significantly.

Key Words: Guerrilla Marketing, Brand Equity, UGC, WOM, Buzz Marketing

1. INTRODUCTION

Guerrilla marketing as a strategy, described as an unconventional form of marketing, has increasingly grown into a prominent marketing strategy as an attention grabbing and creative technique which has evolved in reaction to the increasing competitive marketing environment, decrease in traditional marketing effectiveness as well as through marketing trends such as engagement, the internet, the mobility of media and User-generated media (Trusov, Bucklin & Pauwels, 2009; Shao, 2009; Keller, 2008). Success of guerrilla marketing is linked to the creation of buzz marketing in which aims to create a connection with consumers in order to create word of mouth (WOM) through factors that influence consumers in disseminating. The content therefore exploiting the opportunity of utilising user generated media; created by the consumers through social media. This innovative marketing trend is compelling firms to utilise and research into communications which consumers value as well as how the buzz will become effective; in an online environment in order to distinguish and adapt to the societal change that is occurring within the postmodernist culture (Simmons, 2008). According to literature, guerrilla marketing strategies comprise of flexibility, buzz generation, creation of emotional ideology, and differentiation through originality, stealth marketing, WOM establishment, viral marketing and producing a connection with consumers. The buzz marketing even though is a popular promotional strategy, the techniques that form the basis of buzz as well as a means to create buzz needs to be explored. Essentially, explore the effectiveness of this promotional tool (Notarantonio & Quigley, 2009). Empirical evidence is currently limited regarding the relative effectiveness of WOM marketing in increasing firm performance. This raises the need to study how firms can measure the effects of WOM

producing communications and buzz marketing (Ross & Harradine, 2011; Trusov, Bucklin & Pauwels, 2009). Non-traditional media campaigns often include controversial methods which attract attention and experiences; the gap lies in whether or not these non-traditional media enhances consumer's perceived value of the brand as well as its effect on brand reputation and appropriateness (Ay, Aytekin & Nardali, 2010). For many years, brand equity is one of the most important concepts of marketing and research on the ability of individual marketing activities to strengthen or weaken brand equity has been lacking (Baack, Wilson & Till, 2008). The study therefore exploits the current gaps in the literature as well as a model to enhance brand equity using selected Guerrilla marketing strategies. An established model and scale created by Keller (2008) was used to explore the effects of guerrilla marketing, conducted traditionally then exhibited online (through social media and UGC) and its effects on consumers brand image and awareness of a product.

2. USER GENERATED CONTENT (UGC) AND GUERRILLA MARKETING CAMPAIGNS

Sharing online content is an integral part of modern life and a modern trend where people forward content, reviews and experiences with friends, peers and social communities. Consumers frequently share content online which has an important impact on consumers and the brands they consume, as well as interpersonal communication which takes places through electronic word-of-mouth – WOM (Allsop, Bassett, and Hoskins, 2007). Marketing managers seek to encourage consumer-generated content in anticipation that people will share this content with others (Baird & Parasnis, 2011). Although social transmission is both frequent and significant, literature suggests the factors to achieve that certain pieces of online content become more viral than others and the ways in which guerrilla marketing complies with the factors. The diffusion on innovative prospects, such as guerrilla marketing, is in accordance with the proposition that the tendency to acquire and disseminate information, entertainment as well as participate in user-generated media through the inclination of social interaction and community development. When consumers seek in acquiring new information, it is in accordance with inherent novelty seeking, this concept is with regards to arousal seeking and audaciousness (Okazaki, 2009). With regards to entertainment, which is considered more important in initiating media use and consumption, guerrilla marketing is a creator of mediums of buzz and immediacy for spontaneous self-expression amongst consumers through the opportunity to express with others online. The guerrilla campaigns intends to create a new, stimulating culture that people want to be seen to be part of (Branthwaite & Patterson, 2011).

Consumers have more competences to react upon creative materials, and therefore they have a special interest in seizing and distributing original and inspiring works (Simmons, 2008). Essentially engaging consumers through social media by use of user-generated media by means of making a campaign viral by encouraging an unprecedented amount of consumer participation, the guerrilla marketing principles provide a platform through employing in current market trends. This is done through means of social media, which have changed the way modern consumers locate information, distribute knowledge and communicate with one another. This phenomenon has altered the masses, who were only information consumers via mass media, to be consumers, participators and producers of information and experiences (Wu & Wang, 2011). Content consumption produces value through the gratification or enjoyment of reading or through the benefit of knowledge acquired. Content generation, such as posting an experience and sharing content produces pleasure due to the reputation and status outcome of appearing as persuasive, well-informed, experienced or popular, therefore

signifying that the benefit rises as more content is consumed (Hennig- Thurau, 2010; Hennig-Thurau et al. 2004). The sources in which influences and drives media and content consumption, depend on the influence of positive or negative thoughts and feelings toward a medium (Henrik, 2005). The study links, using guerrilla marketing strategies, the positive attitudes of the brand and UGC to brand image and brand awareness, therefore brand equity.

3. HYPOTHESIS TESTING

Marketing managers need to engage with novel and innovative media in reactive and vigorous customs and implement this in the total marketing strategy through new channels in order to interrelate with consumers. Thus offer consumers' the opportunity to convey and express their creativity, needs and experiences and involve consumers in the production of communication messages and possibly the design of their products. This is evident in consumers physically taking videos, entering specific promotional activities and sharing it in an online platform (Constantinides & Fountain, 2008). Consumers have certain expectations and firms need to generate trust and satisfaction about communication to motivate UGC. This is where guerrilla marketing becomes the motivator in order to get consumers as well as potential consumers to engage with the brand through UGC online (Constantinides & Fountain, 2008). Keller (2008), states that developing and efficiently managing brand equity is a priority for all types of firms. Forming and sustaining brand identity and equity involves the formation of positive, strong, distinctive association in the minds of the consumer. Social media websites create interest as well as trust in the brand. Hence benefits the firm through the ability to continuously interact with its consumers, realize their exact wants and needs and with that improve their products and services accordingly as well as efficiently and effectively develop relationships through constant feedback which help develop the associations of brand image through feelings of intensity and connection (D'Silva, et al., 2011). While advertisers strive to gain attention through strategies such as guerrilla marketing, the prospects to develop interactions with consumers in social media allow promoters to exploit on their gained attention and thus transform their attention into revenue. Through dissemination, the consumer is thus communicating positive WOM, reliance, and attachment toward a brand, feelings which lead to improved brand image and loyalty. Additionally, social media offer a prospect to build a relationship beyond the simple awareness that the majority of traditional media present. Ideally, a consumer can go through all the stages of the hierarchy from awareness to purchase in a social network (Lingelbach et al, 2012). It is known that an increase in users consuming and participating in content through a platform will lead to WOM. Due to the research having a set time frame, the research will assume these WOM effects to be significant due to the UGC constructs and due to the brand image and awareness created. Interactions and relationships between a firm and consumers is essentially an input to brand image. A study conducted by Jalilvand and Samiei (2012), found that WOM has a positive effect on brand image. Thus, based on the above findings the following hypothesis was formulated: H1: There is a relationship between UGC and Brand Image.

Together with this, satisfied customer will consequently circulate positive word of mouth for the brand and thus enhance the brand equity. Overall, it benefits a company by increasing the awareness of its brand, produce leads, construct its customer base, and develop sales and market share. If formulated and executed properly, social media becomes a very cost effective mode of online promotions (D'Silva et al., 2011). Information seeking is driven by people's desire to increase awareness and knowledge of one's self, others, and the world and is an essential part of modern consumers' behaviour (Shao, 2009). Therefore, the online environment offers more opportunities for interactive and personalized marketing as well as

offering information consumers want especially from other individuals therefore opportunities lie in how may influence customer brand image and awareness through the guerrilla marketing in which achieves viral buzz success (Reid, 2008). The firm launches itself and its products and offerings to consumers online while seeking to create an identity, image and personality that will advances customers to get acquainted and create WOM. Consumers seek arousal and uniqueness in the search for information and thus, marketing managers need to take into account the fact that internet is a modern innovative technology that should be met with novel approaches to marketing and communications and hence, a basis for developing and creating awareness (Okazaki, 2009). Awareness is enhanced through tools of WOM as well as cuts through clutter in the market and will allow to fit in the shift in trust in consumers; by allowing consumers to take hold of the promotion presented, thus empowering (Shao, 2009). WOM has the objective to enhance awareness as well as positive attitudes among consumers, and the viral videos which will be an outcome through UGC, has been shown to enhance increase awareness (Noratonio & Quigley, 2009; Balter, 2008). Thus it is hypothesised: H2: There is a relationship between UGC and Brand Awareness

4. RESULTS

A questionnaire concerning two different guerrilla campaign videos were handed out to modern consumers, thus targeted to consumers to utilise the internet. A number of 537 responses were deemed usable for the study. Reliability testing for both pilot and actual data was tested with the Cronbach alpha whereby all measures were found to be reliable and thus relevant for the study.

Table 1.1: Alpha Coefficient Values

Measuring Instruments	Alpha Coefficient values
Brand Image associations	0.92
Judgements and Feelings	0.88
Intensity and Activity	0.80
Brand recall	0.81
Brand recognition	0.72
Consumption of UGC	0.74
Participation of UGC	0.71

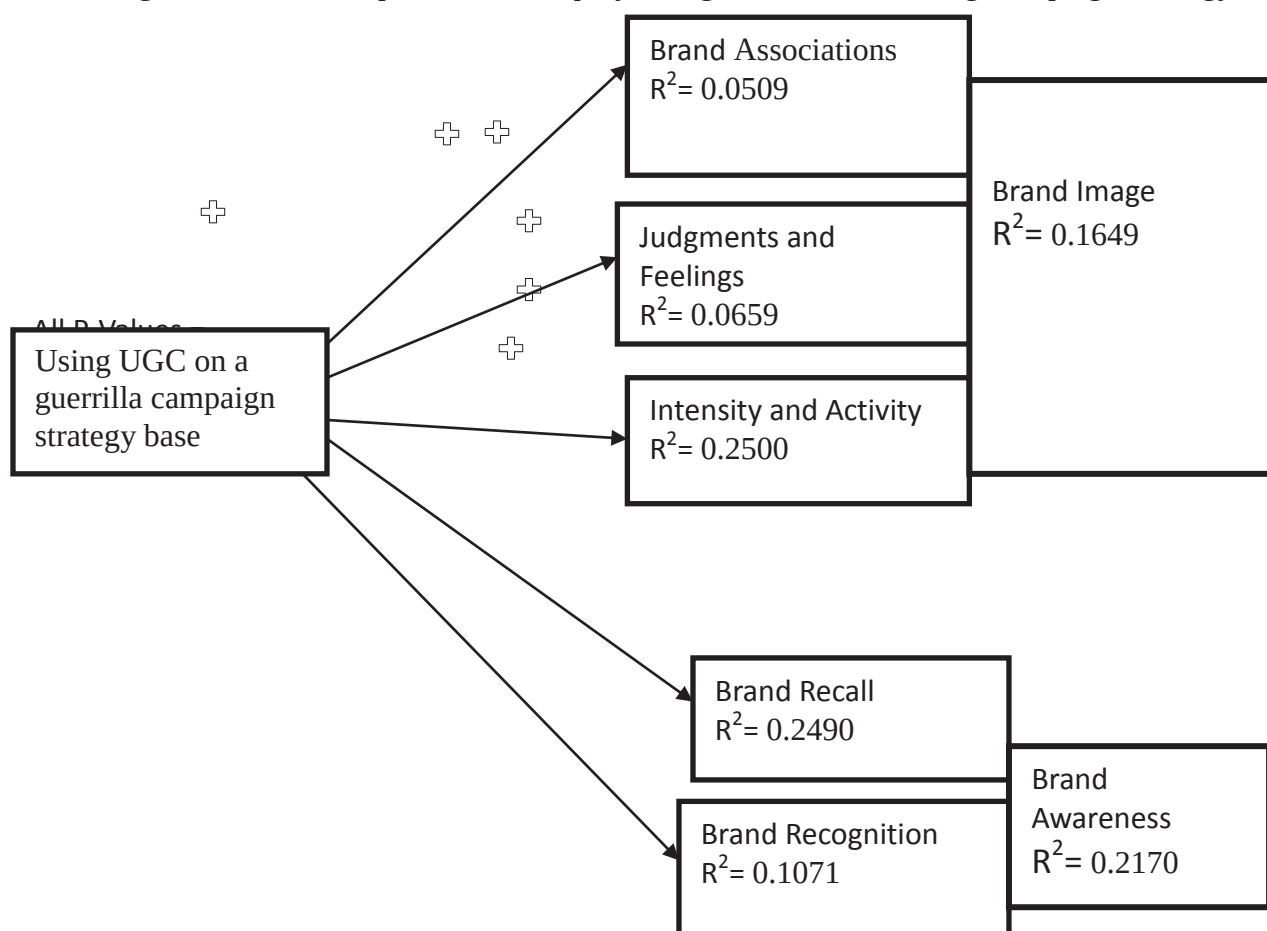
Exploratory factor analysis was used, whereby the orthogonal Varimax rotation method was used Based on the factor analysis results and Cronbach alphas, certain latent variables were removed from the scales and the adjusted scales were used for regression analysis. Linear regression analysis was performed to assess whether the identified independent variables, tool of content sharing content through UGC due to a guerrilla campaign, yielded a significant influence on brand equity. The linear regression results are reported accordingly according to the separate hypothesis.

As the figure depicts, the guerrilla campaign through participation online has a stronger effect on brand awareness than that of brand image. Both relationships are positive and highly significant and thus can be linked to brand equity. It was expected though for the brand awareness to be much higher through participation for it involves the actual sharing of the content through direct and indirect means. Within the study, methods of sharing the content was collected and it must be noted that both indirect means of sharing, thus email and BBM / Whatsap was mentioned as well as direct means through social media networks. Thus this

will all lead to higher brand awareness for now more and more individuals will be exposed to it.

It can be seen that the consumption of UGC had a higher effect on brand image than that of participation. This is also expected for the individuals who merely consume will seek information through the social media and internet as well as read and explore all about the brand and thus all the perceptions will be made more deeply and brand image will increase. It is important that both situations produce only positive results for this is exactly what firms aim to achieve and thus guerrilla marketing does do what literature mentioned that it was aimed to do; which is being about positive feelings and associations with the brand through creativity and engagement as well as exploiting trends (Tariq & Wahid, 2011; Simmons, 2008). The separate factors of brand image and brand awareness will now be discussed.

Fig 1.1: Model to Improve Brand Equity Using Guerrilla Marketing Campaign Strategy



5. CONCLUSION AND RECOMMENDATIONS

This research is aimed at exploring new guerrilla marketing strategies in their effects and their effectiveness as a marketing tool to improve brand equity. The online environment is very supportive of guerrilla campaigns and encouraging the use of consumer trends and utilizing the consumer, empowering them and bringing forward what modern consumers want and need in terms of spending their time online. Based on the findings, it is evident that guerrilla marketing can be used by marketing managers in order to differentiate their offer from competitors. This can be done by using unconventional ways aimed at capturing the

consumers' attention to the very specific details that will differentiate one offer to another. However, the message should also engage the consumers and make them feel that they are part of the campaign in order to maximize the effect on consumers and engaging them through focused exposure to the campaign message.

For example, Nike has used a guerrilla strategy when launched its "WE RUN JOZI" 10 kilometre race held in Johannesburg – South Africa in October of 2012. It is one of 34 races which is an initiative in Nike's 2012 global "WE RUN" series which aimed to inspire, enable and connect runners around the world. This enhanced a lot of buzz in online media as well as traditional media methods such as the radio, and all individuals are blogging, commenting, tweeting and sharing pictures on the event online (NikeWeRun, 2012). The success of this campaign shows consumers are more likely to be involved in a brand and campaign that is both dynamic and engaging. Further the campaign has reached a high level of positive WOM throughout the countries participated in the race.

Further, marketing managers that employ guerrilla strategies will more than likely target want to target a younger consumer market from late teens into 20's in order to encourage that target market in disseminating the actual content. Based on the findings of this research, young consumers are more than likely to actively participate with the content online generating or sharing. Engaging younger crowd is the basis for creating brand ambassadors and online opinion leaders that will be able to first get the message and then more importantly, deliver it further to the target market. Using such strategy will improve implementation of the brand initiatives directly into the target market.

Maybe the main contribution of the research is that marketing managers found to be able to use guerrilla campaigns results to define or redefine new market opportunities best on online campaigns which avails stats that can be drawn from the measurement matrixes for the purpose of evaluating the campaign. This should be directly translated into distinct marketing strategies to already approach the new market opportunities identified as a results of the online success measurements of any campaign. Thus marketing managers should take a new look into the measurements matrixes for the evaluation of the campaign and constantly push boundaries in being innovative as well as creative in terms of translating these results into new opportunities. For example, a company can analyse the UGC side of the campaign and come up with trends specifically related to the different attributes that young crowds are communicating more. That will give marketing managers the way forward for the next campaign or the next product development plans, as they know which attributes have more meaning to the target market. Due to the current cluttered market of products, brands, services and knowledge, marketing managers should effectively reach out to consumers in the best possible way. As seen in the study; UGC participation entails winning the consumer over in order to allow empowerment to the consumer as well as allow innovation opportunities for the business through creation of original ideas, commitment, satisfying consumers preferences and motives as well as enhancing brand equity.

Businesses require active consumer participation throughout time, traditionally through classical methods by receiving the opinion of consumers. Though, web 2.0 and the combination of online market and classical media with unconventional marketing practices through guerrilla campaigns have brought about a new insight for participation. Thus in order for Marketing managers to benefit from consumers, their hype and WOM produced through the platforms of UGC thus, the major source of success in the form of brand equity is achieved through unconventional marketing practices whereby the guerrilla campaigns need

to employ positive feeling and judgments, associations but most importantly, the opportunity for consumers to engage and benefit through contributing with others online and the firm itself.

The above implications are obviously subject to a very important assumption that it is the company's responsibility to bring forth creativity and excitement through the campaign in order to improve participation in content sharing and engagement in order to improve the brand equity of the specific brand or product line. Therefore the interaction will bring about mutual benefits (through enhances brand equity for the brand and motivations for consumers to feel an active part of trends), but also through the vast audience cover through online platforms. Consequently, enriching the concept of guerrilla marketing to concentrate further on activity and intensity of the campaign in order to bring about a consuming and participating consumer.

To summarize: guerrilla campaigns are a creative and innovative way to provide a target market with inspirational and encouraging messages to allow consumers the prospect to become opinion leaders through participation of UGC and opinion seekers through consumption of UGC whereby mutual value is a purpose through relationship creation through triggering excitement and conversation. The notion of the online environment through UGC participation and consumption is an unavoidable and effective marketing tool for companies in the market place and thus guerrilla strategies can be used in order to meet consumer needs for innovation and engagement while improving the brand equity of a product.

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Economic design of CCC control charts with VSI/VCL scheme for high-quality processes

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ABSTRACT

The cumulative conformance count (CCC) chart with variable sampling interval and control limits (VSI/VCL) scheme has been shown being useful for monitoring processes with very low fraction of nonconforming items. The use of a control chart requires selecting several sampling-and-charting parameters (i.e., the design parameters), but how to select design parameters of CCC charts with VSI/VCL scheme has not been discussed in literature. In this study, we address this issue from a viewpoint of economic criterion. A cost model is developed to evaluate the operation cost of the VSI/VCL CCC chart. Based on this model, the solution procedure for searching the optimal design parameters of the chart is built up. Moreover, the model is applied to simulated industrial cases to validate its usefulness and efficiency. Sensitivity analysis is also made to identify the key factors, which could significantly affect the operating cost of the adaptive CCC charts.

Keywords: cumulative count of conforming chart, variable sampling interval and control limits, economic model, high-yield process

1. INTRODUCTION

The p chart has been widely used in industry to monitor the fraction nonconforming (the ratio of nonconforming units in a population to the total number of units in that population). However, for the high-yield process with almost zero-defects it is well-known that the p chart is not suitable due to its very low fraction nonconforming (Abbasi & Niaki, 2007; Noorossana, Saghaei, Paynabar, & Samimi, 2007).

Recently, the cumulative conformance count (CCC) control chart has been highly recommended for high-yield processes (Calvin, 1983; Goh, 1987; Xie & Goh, 1992; Zhang, Xie, & Goh, 2008). The random number of CCC is the inspected number between two consecutive nonconforming units. The basic idea is that the distribution of CCC will change if the fraction nonconforming p of a process shifts. In particular, the expected CCC is shortened as p increases, and it is lengthened as p decreases.

In the CCC chart, if a CCC value satisfies $LCL < CCC \leq UCL$, then the process is considered to be under control. However, if $CCC \leq LCL$, then an upward shift from the in-control value p_0 due to a possible deterioration is signaled; while if $CCC > UCL$, then a downward shift due to a possible improvement is signaled. Here LCL and UCL are the lower and upper control limits of the CCC chart, respectively. Most literature focus only on the design of LCL for an upward shift in p since it is more serious concern in practice. The LCL can be expressed by

$$LCL = \left[\frac{\ln(1 - \alpha)}{\ln(1 - p_0)} \right] \quad (1)$$

where α is an acceptable rate of false alarm.

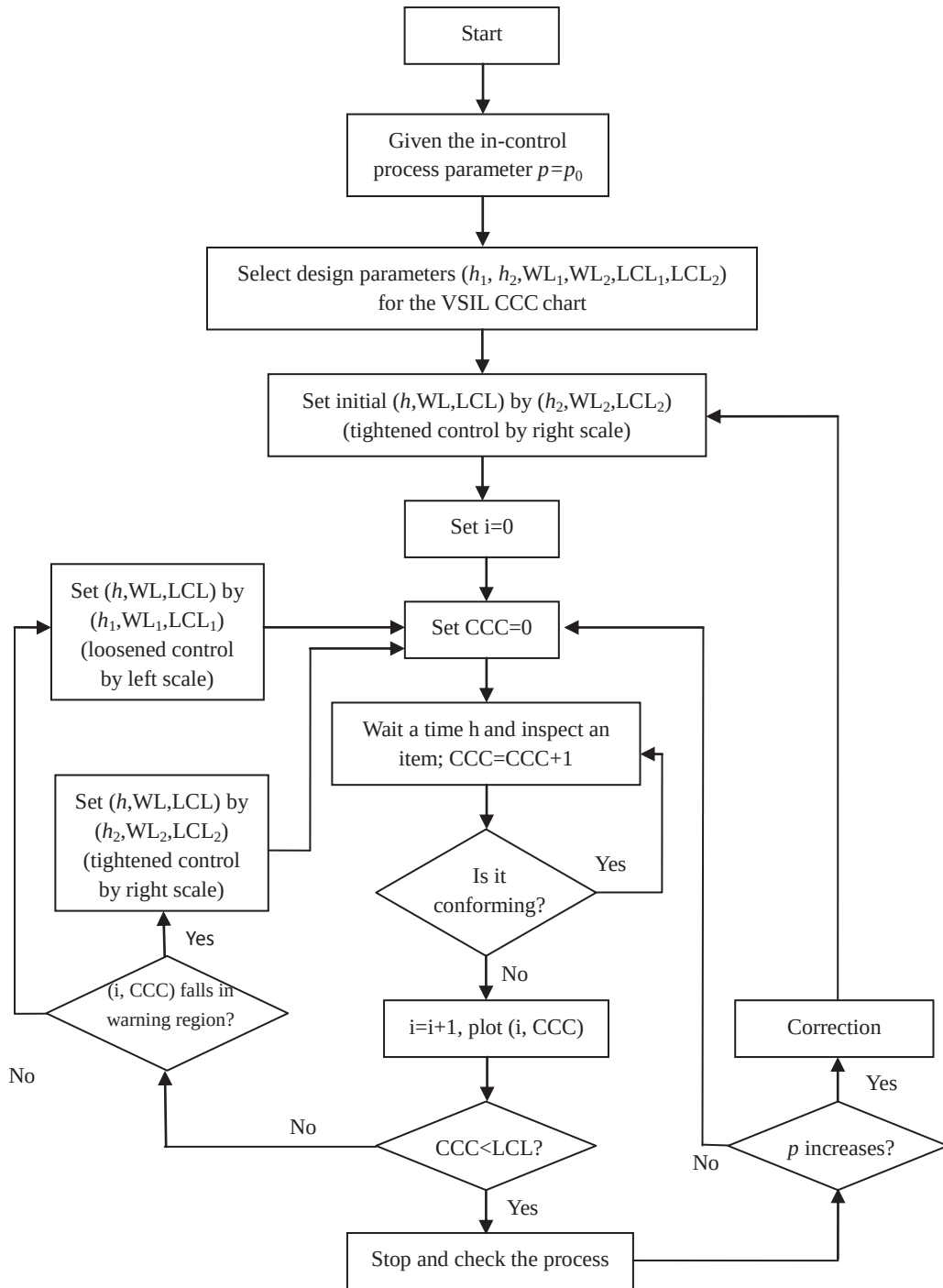


Fig. 1: The charting and decision procedure for the VSI/VCL CCC chart

Typically the strategy of using 100% inspection is suggested for the implementation of the CCC chart. However, when taking the practical factors such as the inspection cost and inspection time into account 100% inspection would be costly for the high-yield processes. Instead of inspecting the items individually, [Liu, Xie, Goh, Liu, and Yang \(2006\)](#) used

sampling to reduce the inspection cost and time. They considered every individual item inspected as a sample (i.e., sample size is one), and called the time between two successive samples the sampling interval. They further employed a variable sampling interval (VSI) scheme to improve the detection speed of control charts for process changes without increasing the rate of inspected items and false alarm occurrences.

Following the idea of Liu et al., [Chen, Chen, and Chiou \(2011\)](#) proposed the variable sampling interval and control limits (VSI/VCL) CCC chart, which allows the length of sampling interval and the width of control limits adaptive, depending on the position of the last CCC point on the chart. If the last CCC point falls in the warning region of the chart, then the control is tighten by shortening the sampling interval until the appearance of next nonconforming unit, and plotting the next CCC point on the chart with narrow control limits. On the other hand, if last CCC point falls in the safety region, then the control becomes looser than usual by lengthening the sampling interval, and plotting the next point on the chart with wide control limits. Fig. 1 shows the charting and decision procedure for the VSI CCC chart.

While the current research has shown the efficiency of CCC charts can be improved by the scheme of VSI/VCL, they did not consider the economic aspect. Therefore, this study aims to extend Chen et al.'s work based on the economic criterion in designing the VSI/VCL CCC-chart.

2. THE COST MODEL

Assume a process starts with an in-control state ($p = p_0$), but after a random time of in-control operation it will be disturbed by a single assignable cause that causes a change in the fraction nonconforming ($p = p_1$). After the change, the process remains out-of-control until the assignable cause is eliminated. The inter-arrival time of the assignable cause disturbing the process is assumed to follow an exponential distribution with a mean of $1/\lambda$ hours. To detect the change in the fraction nonconforming, an item is inspected at each sampling time, and the number of items inspected until a nonconforming item is recorded and plotted on the chart in sequence. If the number is plotted in the action zone, the process will be stopped to search for and eliminate the assignable cause.

The production cycle length is defined as the time from the beginning of the production or after an adjustment to the detection and elimination of an assignable cause. Fig. 2 depicts the production cycle, which is divided into four time intervals of in-control period, out-of-control period, searching period due to false alarm, and the time period for identifying and correcting the assignable cause. Referring to [Chen and Chen \(2012\)](#), the expected length of a production cycle can be expressed by

$$E(T) = ATC + t_0 E(FA) + t_1. \quad (2)$$

where

ATC = the average time from the cycle start to the time the chart signals after the process change.

t_0 = the average amount of time to search for the assignable cause when the process is in-control.

$E(FA)$ = the expected number of false alarms at each production cycle.

t_1 = the time to identify and correct the assignable cause following an action signal.

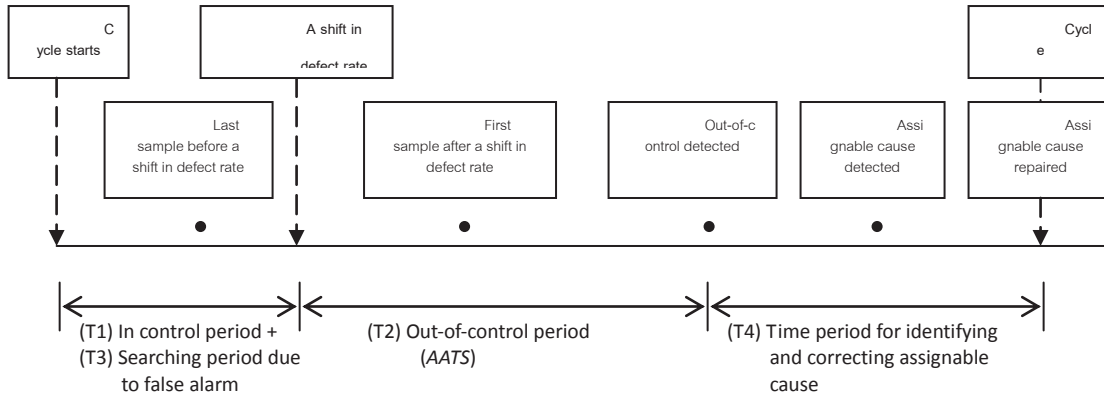


Fig. 2: production cycle considered in the cost model

For the expected net profit from a production cycle, we have

$$E(C) = V_0(1/\lambda) + V_1(ATC - 1/\lambda) - C_0E(FA) - C_1 - sE(N) \quad (3)$$

where

V_0 = the hourly profit earned when the process is operating in control state.

V_1 = the hourly profit earned when the process is operating in out-of-control state.

C_0 = the average search cost if the given signal is false.

C_1 = the average cost to discover the assignable cause and adjust the process to in-control state.

s = the cost for each inspected item.

$E(N)$ = the average number of inspected items during a production cycle.

According to (2) and (3), the expected loss per hour $E(L)$ can be expressed by

$$E(L) = V_0 - E(C) / E(T) \quad (4)$$

3. SOLUTION PROCEDURE

The cost function $E(L)$ is a function of the process parameters $(t_0, t_1, \lambda, p_0, p_1)$, the cost parameters (s, C_0, C_1, V_0, V_1) , and the design parameters $(WL_1, WL_2, LCL_1, LCL_2, h_1, h_2)$. The economic design of a control chart for a particular application is to derive the design parameters that minimize $E(L)$ for the given process and cost parameters. This minimization problem can be regarded as a decision problem with mixed continuous-discrete decision variables and a discontinuous and non-convex solution space. It may be inefficient and time-consuming to apply typical non-linear programming techniques to a search for the optimal solution. But genetic algorithms (GAs) are well suitable for this because they have less chance of converging to local optima in a multimodal space than do the typical techniques.

The tool used for carrying out the GAs is a commercial software package called EVOLVER (<http://www.palisade.com.au/evolver>), which can function as an add-on to Microsoft Excel.

Through a 3^4 factorial design the following setting of control parameters for the package manipulation has been used: population size was set to 50; crossover probability was set up to 0.3; mutation rate was set up to 0.25; and the number of generations was set to at least 20,000 times.

4. RESULTS

In a process, the fraction nonconforming p is being controlled by a CCC chart, given that $p_0=50\text{ppm}$, $p_1=500\text{ppm}$, $C_0=10$, $C_1=30$, $V_0=150$, $V_1=50$, $t_0=0.1$, $t_1=0.3$, $\lambda=0.0005$, $s=0.5$. The CCC chart is designed based on the economic model by setting $WL_1 = WL_2 = 0$, $h_1 = h_2$ and $LCL_1 = LCL_2$. Given $\alpha=0.0027$, the design results in $LCL_1 = 54$, $h_1=0.025$ and $E(L)=37.3963$.

Alternative control charts are tried in order to improvement the operation cost. A CCC chart with the VSI scheme is tried first. Again, the VSI CCC chart is designed based on the economic model by letting $WL_1 = WL_2$ and $LCL_1 = LCL_2$. when α is given by 0.0027, the VSI CCC chart has $LCL_1 = 54$, $WL_1=497$, $h_1=0.059$, $h_2=0.025$ and $E(L)=34.2399$. The savings per hour of operation are $8.44\% \left(\frac{37.3963 - 34.2399}{37.3963} \times 100\% \right)$.

Finally, a CCC chart with the VSI/VCL scheme is studied. Using the economical design model the VSI/VCL CCC chart has $LCL_1 = 54$, $LCL_2 = 512$, $WL_1=63$, $WL_2=521$, $h_1=0.060$, $h_2=0.026$ and $E(L)=33.1287$. The cost savings per hour of operation are 11.41%, which is better than the optimum VSI CCC chart.

The experiment design with orthogonal arrays and multiple regression analysis are conducted to compare the CCC chart and the VSI/VCL CCC chart under different combinations of the values of the input parameters (i.e., $p_0, p_1/p_0, C_0, C_1, V_0, V_1, t_0, t_1, \lambda, s$) in the economic design model. Table 1 illustrates the level plan for each parameter.

Table 1: Levels for each parameters

Model parameters	Level 1	Level 2	Level 3
p_0	50ppm	100ppm	
$\delta(= p_1/p_0)$	5	10	20
C_0	5	10	20
C_1	10	30	60
V_0	75	150	300
V_1	12.5	25	50
t_0	0.05	0.10	0.20
t_1	0.15	0.30	0.60
λ	0.00025	0.0005	0.001
s	0.25	0.50	1.00

After fixing the levels of parameters, the L36 orthogonal array was applied (See Table 2). In the orthogonal array experiment, there are 36 assays. For each assay, the optimal solution to the design parameters is solved by GA's from the perspective of minimizing the cost. The outputs (i.e., the values of optimal design parameters and the cost saving) of the 36 assays are also listed in Table 2, and taken along with their corresponding combination of input parameters (independent variables) for a linear regression analysis.

Tables 3-5 illustrate the outputs of linear regression analysis model with stepwise selection method. The regression analysis is run by the statistical software SPSS 10.0. Table 3 is the

output of regression analysis for the optimal value of the lower control limit.

From the ANOVA result, we find the p-value (i.e., $\text{Pr}>F$) is smaller than the predetermined significance level that implies there is at least one input parameter significantly affecting the optimal value of the minimum sample size. By examining the regression equation, it is found that the levels of input parameters ($p_0, V_0, s, V_1, \lambda$) can significantly affect LCL_2 . In addition, the sign of the estimate for V_0 and λ are positive, indicating the VSI/VCL chart tends to require a larger LCL_2 as the level of V_0 or λ is larger. On the other hand, the sign of the estimate for p_0 , s and V_1 are negative, indicating the VSIL chart tends to require a smaller LCL_2 as the level of V_0 or λ is larger. As for the optimal value of the LCL_1 , it would be ignored here because there is no input parameter significantly affecting it.

Table 2: Orthogonal array and optimal design parameters

Assay	p_0	δ	C_0	C_1	V_0	V_1	t_0	t_1	λ	s	L1	L2	W1	W2	h1	h2	%
1	1	1	1	1	1	1	1	1	1	1	54	459	64	469	0.0415	0.0234	15.8
2	1	2	2	2	2	2	2	2	2	2	54	490	64	500	0.045	0.025	12.49
3	1	3	3	3	3	3	3	3	3	3	54	434	65	445	0.044	0.0222	17.47
4	1	1	1	1	1	2	2	2	2	3	54	54	54	54	0.4934	0.4934	0.00
5	1	2	2	2	2	3	3	3	3	1	54	766	60	772	0.071	0.0407	43.55
6	1	3	3	3	3	1	1	1	1	2	54	466	64	476	0.0456	0.0234	24.90
7	1	1	1	2	3	1	2	3	3	1	54	234	78	258	0.0138	0.0135	6.68
8	1	2	2	3	1	2	3	1	1	2	54	722	60	728	0.0876	0.0357	24.06
9	1	3	3	1	2	3	1	2	2	3	54	760	60	766	0.0984	0.0376	20.70
10	1	1	1	3	2	1	3	2	3	2	54	293	72	311	0.0258	0.0165	11.15
11	1	2	2	1	3	2	1	3	1	3	54	519	63	528	0.0681	0.026	16.01
12	1	3	3	2	1	3	2	1	2	1	54	629	61	636	0.0887	0.0313	38.39
13	1	1	2	3	1	3	2	1	3	3	54	54	54	54	0.2402	0.2402	0.00
14	1	2	3	1	2	1	3	2	1	1	54	362	68	376	0.0347	0.0186	24.64
15	1	3	1	2	3	2	1	3	2	2	54	392	67	405	0.0369	0.0201	19.84
16	1	1	2	3	2	1	1	3	2	3	54	434	65	445	0.046	0.0228	16.94
17	1	2	3	1	3	2	2	1	3	1	54	246	76	268	0.0159	0.0136	7.77
18	1	3	1	2	1	3	3	2	1	2	54	1307	57	1310	0.1913	0.0635	19.58
19	2	1	2	1	3	3	3	1	2	2	27	260	31	263	0.0357	0.0262	6.10
20	2	2	3	2	1	1	1	2	3	3	27	405	29	406	0.1147	0.0405	14.68
21	2	3	1	3	2	2	2	3	1	1	27	299	31	302	0.0641	0.0295	31.27
22	2	1	2	2	3	3	1	2	1	1	27	131	37	140	0.0199	0.014	13.99
23	2	2	3	3	1	1	2	3	2	2	27	331	30	333	0.0762	0.0327	23.79
24	2	3	1	1	2	2	3	1	3	3	27	344	30	346	0.0844	0.034	21.16
25	2	1	3	2	1	2	3	3	1	3	27	27	27	27	2.0136	2.0136	0.00
26	2	2	1	3	2	3	1	1	2	1	27	214	32	218	0.0412	0.0216	21.73
27	2	3	2	1	3	1	2	2	3	2	27	188	32	192	0.0352	0.019	20.01
28	2	1	3	2	2	2	1	1	3	2	27	206	33	211	0.042	0.021	20.48
29	2	2	1	3	3	3	2	2	1	3	27	302	30	304	0.0657	0.0297	29.30
30	2	3	2	1	1	1	3	3	2	1	27	323	30	325	0.0708	0.0318	24.39
31	2	1	3	3	3	2	3	2	2	1	27	128	37	137	0.0188	0.0136	14.27
32	2	2	1	1	1	3	1	3	3	2	27	477	29	478	0.184	0.0477	12.64
33	2	3	2	2	2	1	2	1	1	3	27	495	29	496	0.1238	0.0481	30.26
34	2	1	3	3	2	3	2	3	1	2	27	288	31	291	0.0558	0.0286	22.24
35	2	2	1	1	3	1	3	1	2	3	27	235	32	239	0.0479	0.0236	24.86
36	2	3	2	2	1	2	1	2	3	1	27	296	31	299	0.0637	0.0294	19.94

Note : L1: LCL_1 ; L2: LCL_2 ; W1: WL_1 ; W2: WL_2 ; %: cost saving

Table 4 shows the outputs of regression analysis for the optimal warning limits. It can be seen that the magnitude of δ and p_0 are the input significant parameters influencing on both of WL_1 and WL_2 . As can be seen from Table 4, the positive coefficient of δ in each regression model implies that the VSI/VCL chart with larger warning limits would be more appropriate for a larger mean shift in nonconforming fraction. In the mean while, the negative coefficient of p_0 in each regression model implies that the VSIL chart with smaller warning limits would be more appropriate when the original nonconforming fraction is larger.

Table 5 demonstrates the outputs of regression analysis for the cost savings obtained by using the VSI/VCL CCC chart instead of the CCC chart. As we can see, the magnitude of mean shift (δ) is the only input parameter that significantly affects the amount of cost savings.

Furthermore, the cost saving would be raised when the amount of shift in the nonconforming fraction is large.

Table 3: Linear regression analysis for optimal lower control limits

Model	$LCL_2 = p_0$	V_0	s	V_1	λ	F=240.681	Pr>F=0.000**
Parameter	Estimate	Std. error	t	Pr> t			
Intercept	96.708	2.388	40.497	0.000**			
p_0	-656666.67	19498.338	-33.678	0.000**			
V_0	0.03024	0.005	5.803	0.000**			
s	-7.143	1.563	-4.569	0.000**			
V_1	-0.100	0.031	-3.198	0.003**			
λ	3285.714	1563.345	2.102	0.044*			

*: significance level 0.05

**: significance level 0.01

Table 4: Linear regression analysis for optimal warning limits

Model	$WL_1 = p_0$	δ	F=9.928	Pr>F=0.000**
Parameter	Estimate	Std. error	t	Pr> t
Intercept	484	121.5	3.984	0.000**
δ	17.052	0.906	2.208	0.003**
p_0	-4080000.000	1322719.734	-3.085	0.004**

Model	$WL_2 = p_0$	δ	F=10.291	Pr>F=0.000**
Parameter	Estimate	Std. error	t	Pr> t
Intercept	502.500	120.724	4.162	0.000**
δ	16.905	5.269	3.208	0.003**
p_0	-4215555.556	1314276.992	-3.208	0.003**

**: significance level 0.01

Table 5: Linear regression analysis for cost savings

Model	% = δ	F=12.592	Pr>F=0.001**	
Parameter	Estimate	Std. error	t	Pr> t
Intercept	0.09288	0.03	3.107	0.004**
δ	0.008018	0.002	3.549	0.001**

**: significance level 0.01

5. CONCLUSIONS

An economic design for the VSI/VCL CCC-chart has been conducted. A cost function was developed to evaluate the economic performance of the VSI/VCL CCC-chart, and the genetic algorithm was employed to search for its design parameters. A simulation industrial example is provided to illustrate the application of the economic model. Furthermore, sensitivity analysis was performed to determine the influence of input parameters on the solution of the economic design. The results indicate that the VSI/VCL CCC chart is superior to the CCC chart or the VSI CCC chart in terms of operation costs. In addition, the cost savings by the VSI/VCL scheme and the design parameters of the VSI/VCL CCC chart, depend primarily on the values of $\delta(=p_1/p_0)$ and p_0 .

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Applying ANNs on Exploring Constraints to Museum Attendance

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ABSTRACT

This study aims to develop constraints inference model applying neural network and to assist leisure operators infer what leisure constraints people experienced through family life cycle and demographic variables. This paper focuses on the barriers to visiting The National Science Museum in Taiwan, and collects the samples by questionnaire survey method. We use K-means to classify the respondents into various groups, and then apply neural networks on exploring the relation of family life cycle and demographic variables to leisure constraints.

Keywords: Museum marketing, constraint, artificial neural network, nonprofit organization

1. INTRODUCTION

Museums are non-profit organizations that exist to serve the society and facilitate social development. Over the years, museums have been transformed to provide recreation and education functions in addition to preservation, collection, and exhibition. In nowadays, museums offer visitors a wide variety of cultural and leisure experiences.

Marketing is important not only for general business organizations but also for non-profit ones. However, for museums, the marketing focus should be placed on how to increase visitor attendance rather than profitability or competitive advantages. The recent years have seen a proliferation of studies devoted to analysis of museum visitors' psychology and behavior. Some of them focus on visitor expectations, satisfaction, and information seeking channels, and others address visitor motivation, value, and behavior. However, why it is difficult for museums to attract potential visitors is an issue rarely discussed.

In this study, we view museum attendance as leisure activity and investigate the features that discovery museum attendance based on theory of leisure constraints. Family life cycle and gender are main constraints to leisure participation. In most cases, one's leisure pattern varies along his or her life cycle (Kelly, 1873), and constraints to leisure participation also vary from person to person (Witt & Goodale, 1981; Jackson & Henderson, 1995). The gender constraint is more associated with women who typically have to share more works in the household while taking care of their children (Horna, 1989). This is why women generally perceive more leisure constraints than men (Jackson & Henderson, 1995).

Previous studies also indicated that some demographic variables, such as age (Floyd et al. 2006) and education degree (Crowford, Jackson, & Godbey, 1991; Ryan, 2003) may have an impact on one's perception or experience of leisure constraints. Hence, strategies of constraint negotiation are critical to leisure participation. In this paper, we attempt to identify constraints

to museum attendance from the perspective of visitor. Using the Artificial Neural Networks (ANNs), we also explore the relations of family life cycle and demographic variables to leisure constraints and infer constraints faced by potential visitors based on these variables to help museums devise differentiated strategies for each group of potential visitors.

2. THEORY BASIS

2.1 Leisure Constraint

Leisure constraint refers to barriers that affect one's preference for or participation in an activity. It can be any factor that constrains one's leisure preference, intention toward leisure participation or frequency of leisure participation (Jackson, 1988). Crawford and Godbey (1987) investigated barriers to family leisure in different stages of family life cycle. They pointed out that in addition to structural barriers; leisure barriers also include intrapersonal barriers which have a direct impact on leisure preferences and interpersonal barriers which affect both preferences and participation. They proposed a conceptual model that classifies barriers into three types, including intrapersonal, interpersonal, and structural. Intrapersonal constraints refer to barriers that interact with one's psychological state, attitude, and leisure preferences. Interpersonal constraints refer to barriers resulting from interpersonal interactions. The barriers may affect one's leisure preferences and participation. Structural constraints refer to all the factors that have an impact on one's leisure participation. Structural constraints are the only variable that mediates the relationship between leisure preference and leisure participation. The traditional conception of leisure constraints refers to structural constraints.

2.2 Artificial neural network

Artificial neural network (ANN) is a mathematical model that is inspired by the structure of neural synapses of biological neural networks (Werbos, 1975). The learning algorithms of ANN models are based on an energy function, to evaluate the learning effectiveness of the network. Back-propagation network (BPN) is a supervised learning network model consisting of one input layer, a number of hidden layers, and one output layer, as shown in Fig. 1.

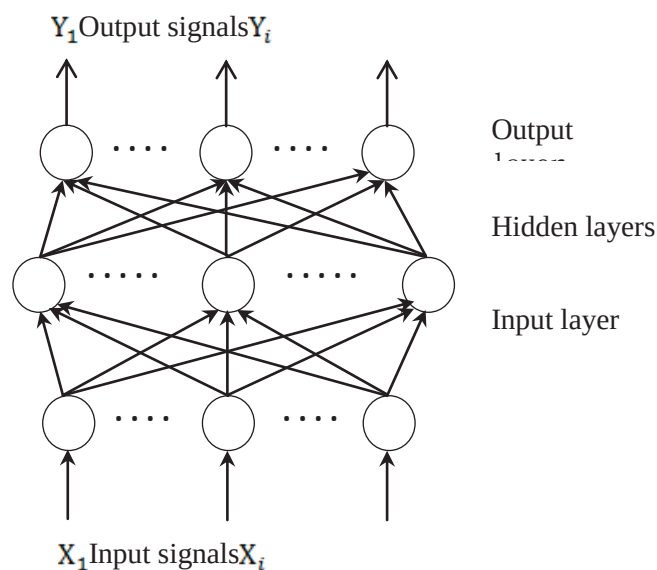


Fig.1: The structure of a back-propagation network

The neurons in the hidden layers include nonlinear transfer functions, such as the hyperbolic

tangent sigmoid function. Through transfer functions, output signals from upper layers can be converted into input signals for lower layers. Based on training examples and actual output values in the problem domain, the model uses the gradient steepest descent method to adjust the weight of each unit to minimize the difference between inferred values and actual output values. The effectiveness of a trained network in interpreting the problem is examined using a holdout sample.

BPN is a neural network technique commonly used for classifying or predicting. It has been documented in many studies that a sufficiently trained BPN delivers good classification performance. Unlike conventional statistical methods, BPN does not have strict requirements. It is a nonlinear network model composed of complicated mathematical elements. As a result, BPN can process data involving complicated and nonlinear relationships and deliver higher predication accuracy than conventional statistical methods in most applications.

3. METHOD

In this paper, we developed a constraint-based classification model in three stages. In the first stage, a questionnaire survey was conducted to collect respondents' basic data, factors affecting their museum attendance, and intention to adopt each constraint negotiation strategy. In the second, cluster analysis was performed to classify the sample by constraint type and level. In the third, ANN was applied to build a constraint-based classification model.

3.1 Data collection

We focused on barriers to visiting The National Science Museum in Taiwan. A close-ended questionnaire was used to collect data from respondents selected via convenience sampling. The questionnaire composed of two parts, including basic data and constraints to museum attendance. The basic data section was intended to collect variables including gender, age, education degree, occupation, monthly income, and family life cycle. The part of constraints to museum attendance consisted of questions designed to evaluate respondents' perception of constraints to their museum attendance on a five-point Likert scale.

3.2 Cluster analysis

We used K-means algorithm to cluster the respondents to various groups. K-means is one of the most canonical cluster analysis methods. It is extensively used across various areas mainly because of its simple structure, capability to process a large amount of numerical data, easy and fast computation, and high effectiveness. Taking advantage of this algorithm's feature that in-group difference is small and between-group different is large, we used demographic variables, family life cycle, the type and level of barriers to help museums set up differentiated negotiation strategies for each group.

3.3 BPN model formulation

We applied BPN algorithm to build a barrier-based classification model in which gender, age, education degree, occupation, monthly income, and family life cycle are input variables and constraint group is the output variable. We also evaluated the accuracy of the model to confirm its effectiveness in predicting one's constraint group based on his or her identity.

4. EMPIRICAL STUDY

4.1 Data collection

The survey period spanned six months from Aug 2011 to Jan 2012. During this period of

time, questionnaires were distributed at The National Science Museum and various locations in Taichung City to respondents selected based on convenience sampling. A total of 418 copies were distributed, and 400 valid responses were obtained (responses with missing or fixed answers were discarded). The valid response rate reached 95.7%. The descriptive statistics of the sample are as follows:

Table 1: Descriptive statistics

	Demographic variable	N	Percentage
Gender	Male	154	38.5%
	Female	246	61.5%
Age	18 or under	26	6.5%
	19-27	106	26.5%
	28-36	128	32%
	37-45	92	23%
	46-54	33	8.25%
	55 or above	15	3.75%
Education degree	Senior/vocational high school or lower	77	19.25%
	College	248	62%
	Graduate degree or higher	75	18.75%
Occupation	Member of a legislature, supervisor or manager of a company	12	3%
	Specialist	110	27.5%
	Engineer or assistant specialist	32	8%
	Administrative assistant	14	3.5%
	Service or sales personnel	85	21.25%
	Technical personnel	7	1.75%
	Machine operator or assembly personnel	11	2.75%
	Basic-level technician or labor worker	14	3.5%
	Student	71	17.75%
	Housekeeper	35	8.75%
	No (including retirees)	9	2.25%
Monthly income	No income	85	21.25%
	20000 or less	44	11%
	20,001-40,000	170	42.5%
	40,001-60,000	62	15.5%
	60,001-80,000	25	6.25%
	80,001-69,999	14	3.5%
Family life cycle	Unmarried	176	44%
	Married, no child	18	4.5%
	Married, and the youngest child is under 3 of age	62	15.5%
	Married, and the youngest child is between 3-6 of age	48	12%
	Married, and the youngest child is between 7-12 of age	48	12%
	Married, and the youngest child is between 13-18 of age	18	4.5%
	Married, and the youngest child is above 19 of age	30	7.5%

4.2 Constraint groups

Based on Crawford and Godbey's (1987) classification of leisure constraints into intrapersonal, interpersonal, and structural constraints, we designed questionnaire items to explore the three types of constraints to museum attendance. The three types of constraints are not mutually exclusive, meaning that an individual may be affected by one or multiple types of constraints at the same time to have reduced intention to participate in a leisure activity. To facilitate development of differentiated negotiation strategies, we clustered the respondents using a *K*-means algorithm to make in-group difference small and between-group difference large and also named each group based on the characteristics of the group. The clustering results are shown in Table 2.

Table 2 Results of grouping by constraint type and level

Type of constraints		Time constraint (35%) Mean	External constraint (37%) Mean	No constraint (28%) Mean	F-value
Interpersonal	I don't like crowded places.	2.87	2.87	2.37	10.253***
	I am not interested in visiting the National Science Museum.	2.26	2.44	1.86	19.845***
	I think visiting the National Science Museum is not my style.	2.18	2.36	1.79	18.461***
	I do not have a good impression of visiting the National Science Museum.	2.07	2.29	1.69	21.614***
Interpersonal	I don't have any friend or relative who can accompany me to visit the museum.	2.68	3.18	1.84	71.888***
	My companion does not like to visit or have little interest in visiting the museum.	2.81	3.55	1.92	66.264***
	My companion lives too far away from the museum or does not have a convenient way to get there.	2.84	3.34	2.00	54.655***
	My companion does not have time to go with me.	3.05	3.75	2.11	82.144***
Structural	Little information about the National Science Museum is available	3.04	3.92	2.38	46.206***
	I am busy with work	3.70	4.13	2.84	38.379***
	I have participated in other leisure activities	3.56	3.75	2.81	25.647***
	I have heavy family responsibilities	2.55	3.13	2.57	15.613***
	The museum is too far	2.92	3.43	2.32	15.771***
	No transportation means is available for me to get to the museum.	2.49	2.69	1.95	17.621***
	I have financial difficulties	2.35	2.21	1.67	22.309***

***P<0.05

Group 1: Time constraint group

Respondents clustered into this group gave a higher-than-the-mean rating to items including “I am busy with work” and “I have participated in other leisure activities”. They could not attend the museum mainly because they spent most of their time at work or on other leisure activities. Therefore, we named this group as the time constraint group.

Group 2: External constraint group

Respondents clustered into this group gave a higher-than-the-mean rating to several items associated with interpersonal and structural constraints. In other words, multiple constraints, including interpersonal and structural, jointly reduced their intention to attend the museum. Because the constraints they experienced came from the external environment, we named this group as the external constraint group.

Group 3: No constraint group

This group was named the no constraint group mainly because respondents in this group gave a lower-than-the-mean rating to all items across the three types of constraints. We inferred that these visitors perceived no significant constraint mentioned in the questionnaire that would affect their museum attendance or they were affected by other constraint not mentioned in the questionnaire.

4.3 Constraint-based classification model

Our classification model considers six input variables, including five demographic variables and family life cycle, and returns one output variable—constraint group. We obtained three

states of the output variable from cluster analysis. We input data into a back-propagation network (BPN) for model training. Before building the BPN-based model, we divided the sample into training sample and the holdout sample. The training sample was used for training, while the holdout sample was used for testing. To ensure sufficient training of the model, the development sample had to be larger than half of the entire sample. In this study, we divided the sample into a ratio of 20:80 for holdout (N=80) and development (N=320).

Construction of a BPN model involves two main tasks, namely configuration of the network structure and parameter setting. These two tasks determine the learning effectiveness and convergence requirement of the model. An appropriate structure can effectively minimize the gap between actual values and output values. The numbers of hidden layers and units are critical for the network structure. Among the network parameters, learning rate, momentum factor, learning epoch, and weight updating method are relatively more important. In our experiences, the effects of learning rate and momentum factor are very limited as long as they are not excessively extreme. Generally, the number of learning epochs should be greater, but an excessive number of learning epochs may result in overtraining. Therefore, overtraining should be considered in the setting of this parameter. As to weight updating method, previous studies have empirically found that sequential learning is usually more effective than batch learning in BPN. Therefore, we adopted sequential learning method to update the weight value.

Table 3: Experiment with various numbers of hidden layer units

Input layer-hidden layer-output layer	The development sample		The holdout sample	
	RMSE	Accuracy	RMSE	Accuracy
6-1-3	0.3106	74.69%	0.3492	62.50%
6-2-3	0.2734	86.94%	0.3537	73.75%
6-3-3	0.2527	87.81%	0.3922	71.25%
6-4-3	0.2197	91.56%	0.2978	86.25%
6-5-3	0.1861	93.44%	0.3781	76.25%
6-6-3	0.1917	93.44%	0.3667	77.50%
6-7-3	0.1885	93.44%	0.4096	77.50%
6-8-3	0.1550	94.69%	0.3381	79.75%
6-9-3	0.1491	95.94%	0.3503	80.00%
6-10-3	0.1456	96.25%	0.4371	72.25%

In our experiences, one hidden layer is enough to reflect the interactive relationship between input and output variables in most problem areas. Therefore, we also set one hidden layer for the BPN structure. Besides, the number of hidden layer units was determined by try and error. We compared root-mean-square error (RMSE) and accuracy across multiple tries to obtain an optimal setting for this parameter. The experimental result is as shown in Table 3. As shown in this table, with the increase in the number of hidden layer units (particularly after the number was greater than 4), the accuracy for the training sample also increased, but the accuracy for the holdout sample did not. This result showed that training became ineffective and convergence became hard to attain when the number of hidden layer units was greater than 4. We stopped the experiment after the number of hidden layer units was increased to 10. The lowest RMSE (0.2978) and highest accuracy (86.25%) for the holdout sample appeared when the number of hidden layer units was 4. Therefore, we set 4 as the number of hidden layer units for the BPN structure. Table 4 provides a summary of our settings for the BPN model.

Table 4: A summary of the settings for the BPN model

Parameter	Value
Number of input units	6
Number of hidden layer units	4
Number of output units	3
Size of the development sample	320
Size of the holdout sample	80
Number of learning epochs	30000
Weight updating method	Sequential learning
Learning rate	1.0
Momentum factor	0.5

With the above settings, we obtained a well-trained BPN model. The convergence of RMSE for the holdout sample is as shown in Fig. 2. The model had sufficient training and produced convergent results after 30000 epochs of learning. Table 5 presents the accuracy of the proposed model for each constraint group. As shown in this table, our model has the highest classification accuracy for the time constraint group (100%). For the external constraint group, the accuracy was 76.19%, with five cases misclassified into the non-constraint group; for the non-constraint group, the accuracy was 80%, with five cases misclassified into the external constraint group and one case misclassified into the time constraint group. The overall accuracy of the model was 86.25%. Of the 80 cases in the holdout sample, 69 were correctly classified, and 11 were misclassified into other groups.

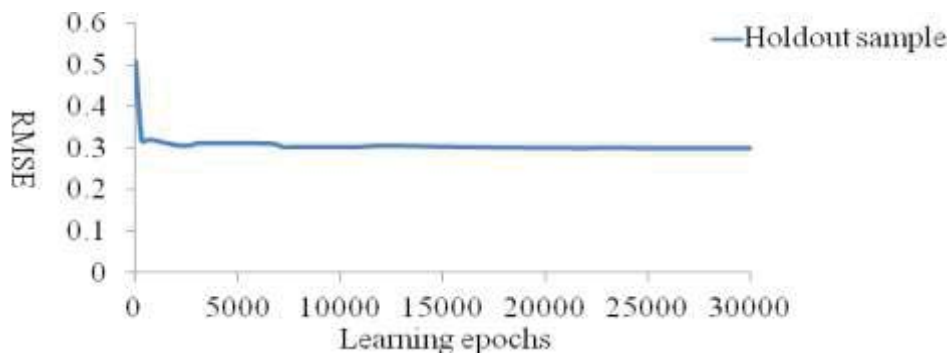


Fig. 2: RMSE convergence curve

Table 5 Results of classification of the holdout sample

Actual group	Inferred group			Accuracy (%)
	Time constraint	External constraint	No constraint	
Time constraint	29	0	0	100.00%
External constraint	0	16	5	76.19%
No constraint	1	5	24	80.00%
Overall accuracy (%)				86.25%

The high accuracy of our model also revealed that family life cycle and demographic variables really had an impact on museum attendance. By exploring the relations between them, we could easily classify visitors into the right constraint group based on these variables.

5. CONCLUSIONS

An individual's intention to participate in leisure activities may be affected if there exists any constraint. If the cause of the constraint can be identified and eliminated, the person's potential leisure needs can translate into participation. Therefore, for leisure service providers, identifying constraints that affect potential customers' leisure participation is an important issue. In this paper, we explored the relations of family life cycle and demographic variables to leisure constraints. We applied BPN to build a constraint-based classification model, which could help museum operators find barriers that affect people's museum attendance and develop differentiated negotiation strategies.

The analysis results showed that most constraints encountered by the respondents were structural constraints, followed by interpersonal constraints. In other words, most respondents were affected by factors in the external environment to have lower intention of museum attendance, and a portion of those who perceived multiple constraints to their museum attendance were also affected by interpersonal constraints. The effect of intrapersonal factors on their museum attendance was minimal. Accordingly, the respondents are clustered into three groups, including time constraint, external constraint, and no constraint groups. The results also showed that the constraint-based classification model could effectively infer the constraint group to which each visitor belongs based on his or her identification. The influence of gender, education level and housewife conform to the literature, but the influence of age and income are low.

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Supplier Relationship Management to Performance Improvement in MRO Purchasing

Case Study: Airline industry in Thailand

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ABSTRACT

Supplier relationship management (SRM) has been attracting increasing attention of practitioners and academics. Many researches on SRM have shown improvements in purchasing efficiency through cooperative SRM; however, relatively little attention has been focused on SRM in maintenance, repair and overhaul (MRO) items purchasing. This paper studies the effect of implementation of cooperative SRM practices and arm's-length SRM practices on purchasing performance of MRO items purchasing in the airline industry in Thailand. The result showed that cooperative SRM improves the purchasing efficiency in all aspects, while arm's-length SRM only improves the purchasing efficiency in reducing the selling price.

Keywords: Supplier relationship management, purchasing performance, airline industry

1. INTRODUCTION

Purchasing is one of the business strategies that have received increasing attention from the practitioners, since it is directly related to a company cost and has great influence on other business activities. Purchasing also improves a company's competitiveness and the company capability in fulfilling its customer needs (Sanchez-Rodriguez and Hemsworth, 2005). Therefore effective purchasing functions can help to reduce cost and maximize the company's competitive edge. However, many elements are required to make purchasing functions effective, such as advanced data information management, good interaction with other functional groups in the organization and strong relationship between the buyer and the seller.

Supplier Relationship Management (SRM) is a process that aims to develop a close collaborative relationship between buyer and seller in the long run in order to maximize the mutual benefits. The close collaborative buyer-seller relationship will influence the performance of other business activities within and outside the organization, such as purchasing and supply chain management (Amad et al, 2008). Therefore, SRM methods and practices have been receiving more and more management attention in recent years.

Much research has been done and articles written on the practice of SRM in manufacturing. However, most of them deal with the purchasing of raw materials and finished goods. Not much has been written about SRM in the MRO items purchasing and in the airline industry.

The airline industry today faces many difficult situations. Global economic slowdown, European financial crisis and the increasing volatility of oil prices have caused higher airline operating cost. In the meantime, the number of passengers has relatively decreased. International Air Transportation Association (IATA) has cut its global airline profit forecast from 4.9 billion US dollars to 3.5 billion US dollars. It is likely that the airline industry would suffer a loss if the financial crisis becomes severe (Institute of Civil Aviation, 2012). Therefore, in order to survive, it is necessary for airlines to enhance their competitiveness by reducing their cost and improving their operational efficiency in all business activities, including spare parts purchasing.

The objective of this research is to examine the factors that influence the choice of a certain method of SRM and its effect on purchasing performance of MRO items purchasing in the airline industry in Thailand in order to build a model of the relationships between methods of SRM chosen and purchasing efficiency. This research is a qualitative research. Data were collected from in-depth interviews with purchasing managers and senior purchasing officers in the aircraft maintenance division of 6 leading airlines in Thailand.

2. LITERATURE REVIEW

2.1 Supplier relationship management (SRM)

SRM is an ongoing process that aim to build a close buyer-seller relationship in which both parties work collaboratively in the long run (Tobias and Peter, 2009) to streamline and make more effective the purchasing and supply chain processes (Amad, et al. 2008). Different ways to categorize the buyer-supplier relationship have been presented by academics and researchers, but mostly it is categorized into 4 levels as below.

1. Arm's-length relationship: This relationship occurs only when there is a purchase. It is a short-term buyer-supplier relationship that mainly focuses on lower price and there is no collaboration and no two-way exchange of information. The characteristics of this relationship level are similar to those of a traditional buyer-supplier relationship (Hines, 2000, Lambert., et al., 1996., Monczka et al., 2002., David et al., 2010)
2. Participating relationship: It is a working relationship between supplier and buyer. Both organizations coordinate and solve problem on a limited basis. The partnership usually has a short-term focus, mainly focusing on cost-reduction and product delivery. This relationship is similar to the reactive problem solving relationship, the suspicion relationship and the preferred supplier relationship (Hines, 2000, Momczka et al., in 2002).
3. Collaborative relationship: Buyer and seller cooperate with each other in strategy planning, operation planning and problem solving. This relationship has a long-term horizon and focuses on cost-reduction and improvement of efficiencies of both organizations. This relationship is similar to the partnership, the closer relationship, the systematic development program and the collaboration (Lambert., et al., 1996, Hines, 2000, David et al., 2010).
4. Strategic alliances: Strategic alliances are collaborative buyer-supplier relationships with no 'end date'. Both parties commit to work closely in joint product design, strategy planning, joint problem solving and joint venture. Strategic alliances aim for total cost reduction and improved performance. This relationship is similar to total trust relationship, vertical integration, joint venture and backward integration (Lambert et al., 1996; Momczka et al., 2002; Landeros et al., 1995; Heide and John, 1990).

Only two levels were chosen as the scope of this research after a review with the MRO items

purchasing manager and senior purchasing officer in the airline industry of Thailand. They are arm's-length relationship (level 1) and collaborative relationship (level 3). The choice for these relationships was related to the nature of the buyer-supplier relationship in the real world.

2.2 Purchasing and the purchasing efficiency

Many companies are turning their attention to purchasing because of its great influence on cost reduction and competitiveness enhancement. Purchasing concepts nowadays are different from these purchasing concepts in the past. Traditional purchasing concepts focused on 'low price and on-time delivery' which may add hidden cost to the operational activities of the organization (Donovan and Maresca, 1999), while purchasers nowadays will focus on total cost reduction (Cannon and Homburg, 2001), value-added service, the ability to meet customer needs, and long-term supplier relationship (Peter et al., 2008). No matter what concepts are used, the organizations need efficient purchasing and the efficiency must be able to be measured.

According to the literature reviewed, purchasing key performance indicators can be divided into 4 categories as shown in Table 1: cost effectiveness, quality performance, quantity, and delivery performance.

Table 1 details each purchasing performance indicator.

Key performance indicators	Performance measurement
Cost effectiveness	Measured by price competitiveness, cost reductions based on collaboration with suppliers, cost reduction on ordering cost, transportation cost and inventory holding cost
Quality performance	Measured by the number of rejected goods, the acceptable quality level of the buyer, and buyer satisfaction level on supplier performance
Quantity	Measured by the number of deliveries with the incorrect quantity, and the deficit or surplus of inventory caused by the purchasing department
Delivery performance	Measured by the lead-time requirement. Measured by the number of on-time deliveries made to the right place

Linda (1994), Monczka et al. (2002) and Walee (2005)

2.3 The airline industry in Thailand

Although the global airline industry is facing the challenge of rising oil price and European financial crisis, the Asia Pacific airline industry is generating more rapid growth than other regions. Boeing and Airbus expect the sale of airplanes in Asia Pacific region to increase to 26% of total airplane sale in 2012, making it the largest market for new airplane (Civil Aviation Training Center, 2012). The airline industry in Thailand is rapidly growing as well as those in Asia Pacific region after the 2009 recession. In 2010, 4 airline startups applied for commercial air service licenses. They are Business Air Center Company Limited, Happy Air Travellers Company Limited, Nakhon Chiang Mai Company Limited and Legacy Air Company Limited (Civil Aviation Training Center, 2010).

The airline industry in Thailand has a positive outlook. However, the tremendous growth potential for the airline industry is not only limited to Thailand, but also other countries in the Asia Pacific region. Therefore, this attracts more new airlines to enter the market and make the business more competitive. Only the strong can survive. Airlines in Thailand are facing

intense competition from rivals in the region. Therefore, reducing total airline cost has a major impact on the competitiveness of the airline. The total airline cost includes fuel cost, labor cost, repair and maintenance cost (John, 2010, 10)

3. METHODOLOGY

This research is a qualitative research. Data were collected from participation-observation and in-depth interview with purchasing managers and senior purchasing officers who were directly involved in supplier relationship management in the aircraft maintenance division of 6 leading airlines in Thailand. The questionnaire included semi-structured questions related to types of SRM, factors that influence the choice for a certain method of SRM, purchasing efficiency and the effects of SRM on purchasing efficiency of MRO items.

The following were the steps in collecting data for this research.

1. Documentary research: Study of secondary data related to SRM theories, SRM concepts and researches related to SRM, purchasing, and airline repair and maintenance. Related document, textbooks, academic paper, and researches in Thailand and abroad were also studied
2. Creating the conceptual framework of the research: The framework was created by applying SRM theories and concepts and purchasing efficiency. It served as the basis of in-depth interview questions and also the criteria of observation.
3. Reviewing and examining the questionnaire: 5 specialists evaluated the questions to verify if they were relevant to the conceptual framework, objective and the problem of this research. This step was also considered as an evaluation of the first version of in-depth interview questionnaire relating to content validity.
4. Applying a pilot test: The questionnaire was revised based on the specialists' suggestions. A pilot test was carried out with 5 people who were directly involved in supplier relationship management in the aircraft maintenance division to verify the understanding of the interview questions.
5. In-depth interview: After the adjustments, the final version of the questionnaire was used in in-depth interviews with purchasing managers and senior purchasing officers who were directly involved in supplier relationship management in the aircraft maintenance division of 6 leading airlines in Thailand. The sample included 12 people, 2 people from each airline. Observations were also carried out on airline SRM activities and the consequences for the spare-part purchasing of airlines.
6. Data collected from in-depth interviews and observations were used to analyze the theories and concepts derived from the literature review and documentary research. Finally, the result of the analysis was presented in descriptive form.

4. RESULTS

The results of this research are derived from data analysis of participant-observation and in-depth interviews with 12 people who are purchasing managers and senior purchasing officers directly involved in supplier relationship management in the aircraft maintenance division of 6 leading airlines in Thailand. The results are divided into 3 parts: (1) supplier relationship, (2) effects of SRM on purchasing efficiency, and (3) conceptual framework.

4.1 Supplier relationship

From the in-depth interview with executives, it was found that there are 2 main types of SRM used in the airline industry. They are arm's-length SRM practices and cooperative SRM

practices. Table 2 shows the factors that affect the airline's decision in choosing SRM types. There are six main factors: (1) total value of purchase, (2) suppliers who are in the reference list of the airplane manufacturers, (3) type of product, (4) score from the supplier evaluation, (5) degree of trust between buyer and seller, and (6) supplier responsiveness to customer needs.

After analyzing the information collected, the characteristics of purchasing activities in both SRM types can be summarized as below.

Purchasing activities in arm's-length SRM include

- Making purchases that emphasize low prices, especially of items that are widely available
- Making purchases by using competitive bidding, or comparing prices among two or more suppliers
- Checking the updated price every time there is a purchase
- Spending longer time in issuing a purchase order
- Checking the price with suppliers more often
- Making purchases on a nonrecurring or limited basis with little intention of developing an ongoing relationship with suppliers
- Little or no information sharing or information exchange

Purchasing activities in cooperative SRM include

- Working together with suppliers to achieve joint cost reduction
- Both sides taking cost savings, a win-win approach to reward sharing
- More information sharing and open exchange of information
- Involving suppliers in the early stage of purchasing planning
- Making purchases with single vendor
- Making long-term contract with suppliers
- Making purchases that focus on value-added services rather than low price

4.2 Effects on purchasing performance

From the literature review done, most researchers measured the effects of SRM on purchasing performance in four dimensions: (1) purchasing cost (2) quality of products and supplier service (3) purchase volume and (4) delivery. The purpose of this research was to study the effect of implementation of cooperative SRM practices and arm's-length SRM practices on purchasing performance. Four dimensions of the results are discussed.

4.2.1 Effects on purchasing performance in purchasing cost

According to the information gathered from in-depth interviews with 16 purchasing executives, the results show that arm's-length SRM brings direct positive effects on reducing the purchase price as buyers do more price comparison with vendors before making purchase. In arm's-length SRM, there is more competition as new suppliers are invited to take part in the competitive bidding. However, most interviewees agreed that arm's-length SRM increases purchasing cost, such as transportation cost. As the products are ordered from multiple vendors, more transporting is needed and more urgent shipping is made. As for the terms of inventory holding cost, the information gathered is not sufficient to make any conclusion on the effect of arm's-length SRM on inventory holding cost.

All interviewees confirmed that using cooperative SRM can reduce transportation cost by 10-15%, compared with using arm's-length SRM. Most interviewees agreed that cooperative SRM reduced ordering cost caused by repetitive ordering processes. Moreover, it reduced labor cost, which is one of the major costs of airlines, by reducing executives' working hours

on making a purchase. 4 out of 6 purchasing managers of the aircraft maintenance division agreed that sharing information of the aircraft maintenance schedule, quantity of spare parts needed, and the quantity of “no go item” could reduce the urgency of the shipments. It was because most aircraft spare parts were shipped from overseas. On the other hand, it was found that cooperative SRM increased inventory holding cost by allowing the suppliers to store their stock or aircraft spare parts in the buyer’s warehouse.

4.2.2 Effects on purchasing performance in quality of products and supplier service

Buyers in the aircraft maintenance division in all airlines place great emphasis on the quality of aircraft spare parts purchased. Only the aircraft spare parts certified by FAA or JAA certificate are purchased. Therefore, this research focused on the quality of suppliers when measuring the effects of SRM on purchasing performance of the airlines. According to the information gathered from in-depth interviews, most interviewees agreed that there was a risk in evaluating new suppliers in arm’s-length SRM. Buyers of aircraft maintenance division preferred to choose new suppliers who could provide better quality products and service, rather than ask existing suppliers to improve their quality to meet the buyers’ needs. In the meantime, cooperative SRM helped to improve the suppliers’ responsiveness to customer needs. Long-term close buyer-seller relationship makes buyers and suppliers understand and know the other party’s operations and their needs better. Performing supplier evaluation on a regular basis helps to create standards for the suppliers to meet the buyers’ needs.

4.2.3 Effects of on purchasing performance in purchase volume

Purchasing performance in purchase volume is measured by the number of deliveries with the incorrect quantity, and the deficit or surplus of inventory caused by the purchasing department. Information gathered from in-depth interviews and participant-observation showed that cooperative SRM reduced the number of incorrect-quantity deliveries. According to the supplier evaluations of 5 airlines, it was found that the purchasing performance in purchase volume improved after the implementation of cooperative SRM. The number of incorrect-quantity deliveries was reduced; inventory management became more efficient; and surplus or deficit of inventory due to poor ordering and inventory management of buyers was reduced as well. According to the information given by purchasing managers of the aircraft maintenance division, open exchange of information about maintenance schedule and forecasts for purchased spare-parts and better understanding in suppliers’ operations helped to improve the precision in lead time of deliveries.

As for arm’s-length SRM, it was found that the airlines still had some problems in terms of the correct quantity of goods in the shipment received, albeit, on an infrequent basis. Most problems in purchase volume faced by the purchasing department were some parts were overstocked while some parts were understocked. According to the interviewees, the problems in stocking were caused by the lack of coordination and information sharing. The minimum order quantity was also one of the reasons that caused overstocking.

4.2.4 Effects on purchasing performance in delivery

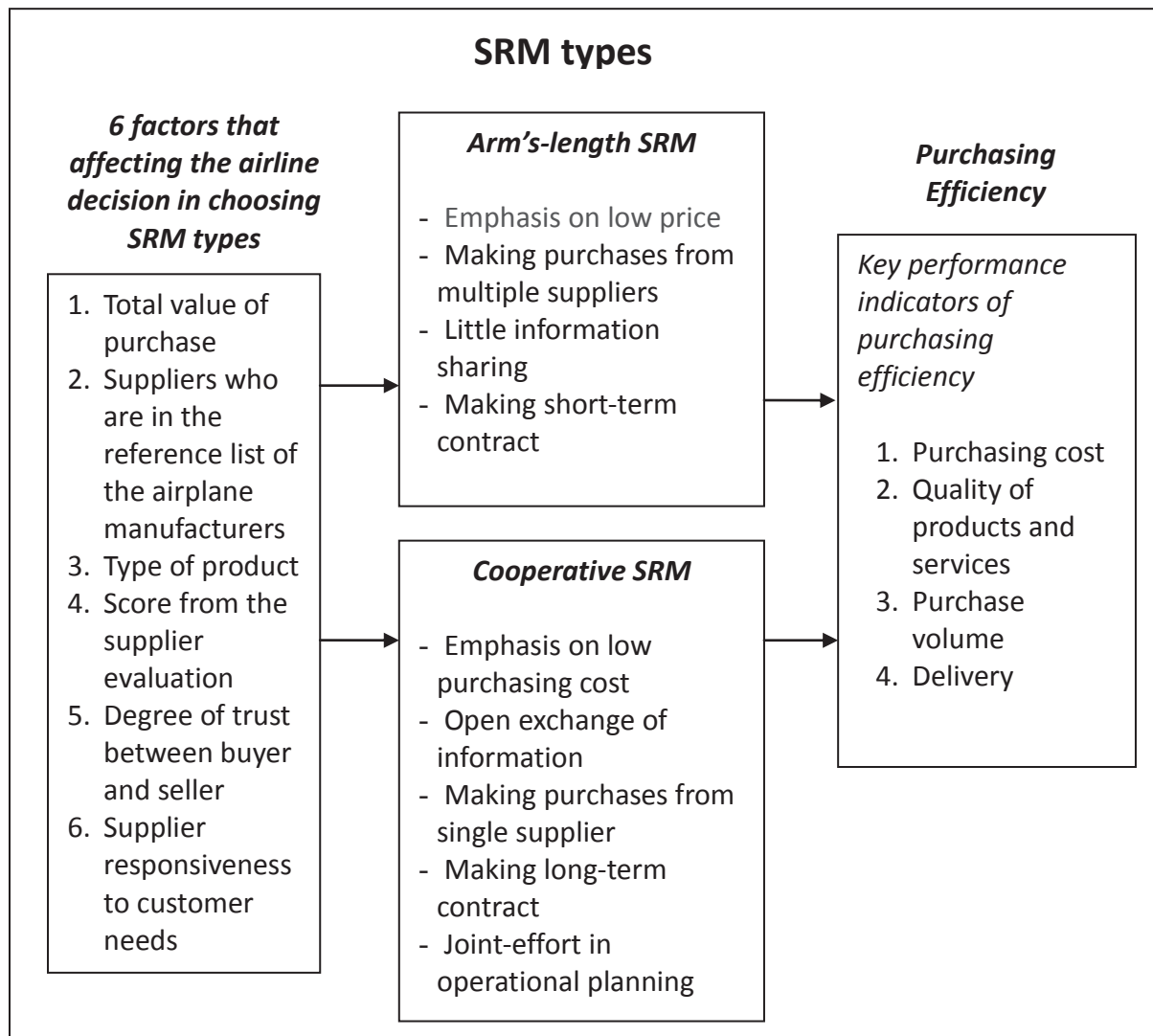
The results show that there is a clear difference between arm’s-length SRM and cooperative SRM in terms of delivery time. According to the interviewees, cooperative SRM shortened delivery lead-time. 1 out of 6 purchasing managers of the aircraft maintenance division compared the supplier evaluation result gathered before and after the implementation of cooperative SRM, and found that the delivery lead time had been shortened from 3 weeks to 3 days. The other 5 purchasing managers of the aircraft maintenance division agreed that cooperative SRM allows suppliers to share information, learn about the buyers’ needs and,

response better to the requirements or changing needs of buyers.

As for arm's-length SRM, most interviewees commented that the delivery efficiency depended on the source of the spare parts. Buyers need to consider a number of factors, including price, lead time, payment condition, and other conditions. Therefore, putting more weight on delivery lead time may result in poor purchasing performance.

4.3 Data analysis with the conceptual framework.

The objective of this research was to develop a model that allows us to understand and analyze the relationships between methods of SRM chosen and purchasing efficiency. From the data analyzed above, a model can be constructed as illustrated below.



5. SUMMARY

In this research, a case study on the effects of implementation of SRM practices on purchasing performance of MRO items purchasing in airline industry in Thailand has been done. The results show that cooperative SRM reduces purchasing cost and transportation cost, improves the responsiveness of suppliers to buyers' needs, reduces the inventory problems, shortens the delivery lead time, and also reduces errors in delivery. As for arm's-length SRM, the results show that it brings benefits in reducing purchase price and making supplier

switching easier, but it increases transportation cost, especially urgent shipment cost. It also causes more inventory problems than cooperative SRM. Both SRMs are applied in MRO items purchasing of the aircraft maintenance division of the airline industry in Thailand. Proper selection of SRM based on the factors discussed will result in the best purchasing efficiency in purchasing performance.

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ABSTRACT

I examine the pay-for-performance hypothesis by studying Indonesian firms during the global financial crisis. Controlling for some firm fundamental factors and industry, I find that there is strong evidence that past performance drives the compensation paid to executives. This paper also reveals that financial firms tend to compensate their executive higher than those of non-financial firms.

Keywords: performance, compensation

1. INTRODUCTION

There have been so many explanations on the roots of the 2007/2008 global financial crisis. Some argue that excessive risk taking is one of aggravating factors in such crisis particularly in the financial industry. Arguably, the main reason for excessive risk taking behaviors is maximization of compensation. Managers and directors pursue tend to take risk, to increase firm value and ultimately to achieve their maximum compensation. This fact is a consequence of the pay-for-performance that has been widely implemented on the compensation system of firms' top management members.

Basically, the pay-for-performance hypothesis explains that a firm should reward its executives according to their performance (Bangoj, et al., 2010) and should punish their bad performance (Shaw and Zhang, 2010). A number of studies have been attempting to examine the pay-for-performance hypothesis (Core et al., 1999; Geringer et al., 1999; Brunello et al., 2001; Kato et al., 2007; Bangoj et al., 2010, Shaw and Zhang, 2010; Ozkan, 2011). Mostly, those studies find evidences on pay-for-performance hypothesis. For instances, Kato et al. (2007), using a panel data of Korean firms, conclude that cash compensation of Korean executives is significantly related to stock market performance. Ozkan (2011) examines the link between CEO pay and performance using UK firms-level data. He finds significant effect, however the pay-performance elasticity for UK CEOs seems to be lower; more so for cash compensation.

This paper extends the literature on the determinants of executive compensation by studying Indonesian firms which the market value of capital market in this country is growing rapidly. More specifically, I test the pay-for-performance hypothesis controlling for some fundamental factors of firms and industry difference.

2. REVIEW OD THE LITERATURE

It has been generally considered that executive compensation of firms should be based on performance to eliminate agency problem between managers and shareholders.

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Compensation is often seen as an instrument to align managerial interests (agents) with those of the shareholders (Bangoj et al., 2010). Literature on executive compensation could be viewed from corporate governance perspective (Sapp, 2008; Conyon and He, 2011, Conyon et al., 2011) and agency problem perspective (Core et al., 1999). Comprehensively, Sun et al. (2010) summarize three major theories in explaining executive compensation. The first one, the economic perspective, majorly based on the agency theory according to the seminal work of Jensen and Meckling (1976) argues that the separation of ownership and control in modern corporations demands close monitoring of managers' behavior by principals to protect shareholders' benefits. Related to executive compensation, the proponents of this theory suggest that to minimize agency problems resulted from the separation between ownership and management, firms could employ some governance mechanisms such as managerial stock ownership aligning the interests of managers and shareholders, and outcome-based incentive contracts that decrease managerial opportunism (Eisenhardt, 1989). The second one, from the sociology point of view, based on stewardship theory which contrary to the agency theory, contend that managers do not always act in self-interested ways and in a situation of conflict they often place the interest of their firms above their own interests (Zajac and Westphal, 2004). The third one, Institutional perspective, argues that incentive mechanisms should be designed based on institutional framework (Peng et al., 2009). Those three theories of executive compensation basically view the issue of executive compensation as a tool to how to align managerial interests and shareholder interests. It can be concluded that a good compensation system would lead managers to behave in line with shareholders interests.

The pay-for-performance hypothesis argues that firm performance is the main measure to determine executive compensation. According to agency theory, pay-for-performance could be considered as a mechanism to align the managers-shareholders interests. It has been introduced in finance literature a concept of delta, or pay-performance sensitivity. It measures the change in the value of executive/CEO wealth for a 1% change in stock price. Therefore, high-delta compensation reduces conflicts of interest between managers and shareholders by linking manager wealth to the value of the firm's stock (Jensen and Meckling, 1976).

Several empirical studies support the pay-for-performance hypothesis. Kato et al. (2007), using panel data of Korean firms, conclude that cash compensation of Korean executives is significantly related to stock market performance. Banghøj et al. (2010), focusing on privately held firms, test the determinants of executive compensation. They find that there is a weak relationship between performance and executive compensation. However, their finding indicate that two governance variables which are board size and ownership concentration as well as executive characteristics such as skills, title and education significantly influence executive compensation. Ozkan (2011) examines the link between CEO pay and performance using UK firms-level data. He finds significant effect, however the pay-performance elasticity for UK CEOs seems to be lower; more so for cash compensation. A number of scholars have been expanding the measure of pay-for-performance by looking at corporate strategies as proxy of performance. Those who work on that issue argue that rather than using direct performance, more appropriate to use corporate strategies taken by executives such as risk taking strategy to determine their compensation (Dow and Raposo, 2005). For instances, DeYoung et al. (2009) examine whether and how the terms of CEO compensation contracts at large commercial banks in the US influenced, or were influenced by, the risky business policy decisions made by these firms. They find strong evidence that bank CEOs responded to contractual risk-taking incentives by taking more risk. Balsam et al. (2011) shows that there is an increased emphasis on sales in the determination of executive compensation for firms pursuing a cost leadership strategy, which seek to achieve their competitive advantage through low price and high volume.

Yoshikawa et al. (2010), based on a sample of the 148 largest industrial firms in Japan for the 1990–1997 period, show that two firm strategies which are R&D investment and product diversification are positively related to executive bonus pay.

Recently, a number of studies directly incorporate the role of corporate governance variables on executive or CEO compensation. For example, Guthrie et al (2010) find that the compensation committee independence requirement increases CEO total pay, particularly in the presence of effective shareholder monitoring. This evidence bolsters the managerial power hypothesis, the effectiveness of independent directors in constraining CEO pay.

3. EMPIRICAL STRATEGY

I collect data on executive compensation of 67 listed Indonesian firms from their financial statements and annual reports¹⁵, while data on firm size, age, and leverage are also cross-checked with the OSIRIS database. I focus on the short period during the global financial crisis (2007-2008) to take a precise picture of the pay-for-performance system.

Compensation is defined as total compensation received by directors and commissioners (LNCOMP). I use natural log of compensation following the study of Bangoj et al., 2010 to overcome heterogeneity issue. Performance is proxied by the ratio of return on assets (ROA_L1). A lag value is employed for this variable as given the fact that the focus of this study is the effect of past performance on executive compensation. Another advantage by using the lag value is to avoid endogeneity problem between these two variables. Several control variables are included. First, I control for firm size measured by the natural log of total assets (LNTA). Then, I include the ratio of total debt to total assets to represent the leverage degree (LEV). The age of firm is also accounted (AGE). As some firms in this study are state-owned enterprises, I bring in a dummy variable to identify whether a firm is government firm or private firm (SOE). Dummies to account industries are also incorporated¹⁶. I control for year-effect as well as employing heteroscedasticity-robust method in all models. I estimate the empirical model using ordinary least square (OLS) regressions. Descriptive statistics as well as correlations among variables can be seen in Table 1.

Table 1. Descriptive statistics and correlations

This table presents the descriptive statistics and correlation matrix of variables. LNCOMP is the natural log of total executive compensation. ROA_L1 denotes the lag value of the ratio of return on assets (%). LNTA represents the natural logarithm of total assets. LEV is the leverage ratio measured as the ratio of total debt to total assets (%). Age is firm age.

	Mean	Median	Max	Min	LNCOMP	ROA_L1	LNTA	LEV	AGE
LNCOMP	15.548	15.635	17.651	11.097	1				
ROA_L1	7.155	5.510	60.660	85.020	0.237	1			
LNTA	20.962	21.044	24.088	14.165	0.330	0.220	1		
LEV	50.634	51.679	99.996	3.466	0.041	-0.292	0.087	1	
AGE	28.648	25	77	5	0.204	0.339	0.053	0.063	1

¹⁵ I face a difficulty in collecting executive compensation data because many firms do not report compensation to their executives. Therefore, during the period I study, only 67 firms are included in the sample resulting in 125 firm-year observations.

¹⁶ I refer to the work of Prabowo et al. (2012) who use Jakarta Stock Industrial Classification (JASICA) to distinguish the industry where a firm exists.

4. RESULTS

Table 2 presents the results of OLS estimations. I alter some combinations of explanatory variables into three regression models. The first column is the OLS regression when only two explanatory variables (ROA_L1 and LNTA) are included. I add LEV, AGE and SOE in the second model, while industry dummies are incorporated in the third specification.

Table 2. Regression Results

This table presents the regression results. LNCOMP is the natural log of total executive compensation. ROA_L1 denotes the lag value of the ratio of return on assets (%). LNTA represents the natural logarithm of total assets. LEV is the leverage ratio measured as the ratio of total debt to total assets (%). Age is firm age. SOE is the dummy variable taking a value of 1 for state-owned enterprises. The values in bracket are heteroscedasticity-robust standard errors. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Compensation (LNCOMP)		
	1	2	3
Constant	10.82*** (0.117)	11.21*** (0.22)	9.475*** (0.416)
ROA_L1	0.012*** (0.001)	0.011*** (0.00008)	0.007*** (0.002)
LNTA	0.219*** (0.005)	0.181*** (0.01)	0.29*** (0.019)
LEV		0.002** (0.001)	-0.004*** (0.0002)
AGE		0.011*** (0.002)	0.004*** (0.0001)
SOE		0.116 (0.144)	0.780*** (0.070)
Basic			-0.176*** (0.024)
Consumer			0.025 (0.065)
Finance			1.299*** (0.094)
Infrastructure			0.426*** (0.007)
Mining			-1.407*** (0.171)
Property			-0.619*** (0.091)
Trade			0.205*** (0.009)
Year dummies	Included	Included	Included
Method	OLS	OLS	OLS
Firms	67	64	64
Observations	131	125	125
R-squared	0.161	0.167	0.269

As shown in Table 2, pay-for-performance hypothesis is confirmed in all regression models at 1% level of significant. The results show that Indonesian firms, in general, pay their top management members based on their performance. If firms' executives perform well in providing a higher accounting performance in the previous year, they will benefit by receiving a higher total compensation. It is in line with the findings of some previous studies on pay-for-performance hypothesis (e.g. Core et al., 1999; Geringer et al., 1999; Brunello et al., 2001; Kato et al., 2007; Bangoj et al., 2010, Shaw and Zhang, 2010; Ozkan, 2011)

Our results also show that large firms, as expected, pay a higher level of compensation to their executives than those of small firms. This evidence is robust in all models. Similar findings are also obtained for the coefficients of firm age in model 2 and 3. However, inconclusive findings are found in the sign of the coefficients of firm leverage. State-owned firms, as shown in column 3, compensate a higher salary for their directors and commissioners than those of privately owned firms.

Interestingly, the result of third model shows that coefficient of financial firms is positive and significant. It means that firms operating in finance industry tend to pay a higher compensation for their executives.

5. COMCLUSION AND LIMITATIONS

I test the relationship between past performance and executive compensation. The main finding of this study is there is strong evidence that past performance positively associated with the value of rewards given to firms' executives. The results reveal that Indonesian publicly traded firms apply the pay-for-performance system in compensating their executives. This system might reduce the agency problem between managers and shareholders, on the other side, however, this system might also increase the incentive for managers to take risk which subsequently enhance the degree of riskiness of firms.

However, I admit that this paper has some limitations. The small sample of this study could result a bias in the interpretation as it lacks the degree of freedom. Another limitation comes from the fact that the relation between executive compensation and performance might be endogenous, even if the lag value of the proxy of firm performance used. Lastly, I acknowledge that this empirical model could not take into account the effect of pay-for-performance on risk taking behaviors.

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How Leaders' Values Influence their Strategic Making in the Music Industry: A Case Study of a Taiwanese Live House Manager

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ABSTRACT

Due to the recording industry's decline since early 1990, the main source of music industry's earning has also shifted from the sales of albums to those of tickets to live performances. Also, from the increased number of people going to music festivals and live concerts, we can see that the experience economy has played a main role in the pop music industry. This transition makes Live Houses, the venue of live music performances, even more important. However, most leaders and employees in Live House industry only have professional music background; they are not well equipped with management knowledge and skills. This phenomenon affects not only the efficiency of Live Houses' organizational management, but will also be the bottleneck of their future development. The pilot study shows the leader's values of Riverside Live House is quite different from those of other for-profit organizations, and it could be the difference between the two sets of values that causes the gap in their strategic making. Besides, it's difficult to take both arts and business management into consideration in Live House industry, so the Live House industry has its uniqueness and its own challenges. Nevertheless, there are few literatures discussing the application of management in music and performing arts industry. Therefore, this study will use the qualitative research methodology to find out what the special values of Live Houses' leaders are and how their values may influence their strategic making. The results will provide the leaders who have professional music background with insights to adjust their way of management.

Keywords: Live House, Value, Strategic, Music Industry

The war of unit and number: How do the units affect consumers' product evaluation?

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ABSTRACT

Quantitative information can have a major impact on product evaluation. For example, consumers may rate a warranty level expressed in 24 months(expanded scale) as more desirable than when it is expressed in 2 years(contracting scale), because consumers may neglect the unit and think that the larger number means the more quantity, and this is called 'the unit effect' (Pandelaere, Briers, & Lembregts, 2011). The purposes of this research are to examine the unit effect on consumers' evaluations and the moderating effect of numeracy, which is a consumer characteristic, on the unit effect.

In the study, we conducted paired-samples *t*-test determine whether the evaluation of target option is significant higher than the other. The result shows that participants prefer the cheaper option when the number of movies from available is expressed on week, but prefer the more expensive one which is showed in years.

The second research question is 'Will consumer numeracy moderate the unit effect?' The same students are asked to evaluate telecom packages with their new smart phones, and there are two options in each of two telecom companies. One company expresses the options on minutes, and the other shows in second. Next, numeracy will be measured through some math questions. The data are analyzed using a 2(scale: contracting vs. expanded) x 2(Numeracy: numerate vs. general) ANOVA. The result demonstrates that highly numerate consumers, as opposed to less numerate consumers, would evaluate the cheaper option favorably regardless of the unit presented, and the less numerate consumers would evaluate the cheaper option more favorable when expressed in contracting scale but evaluate the more expensive one more favorable when shown in expanded scale.

Keywords: the unit effect, numeracy, expanded scale, contracting scale

1. INTRODUCTION

Consumers encounter different types of quantitative information; for example, television warranty levels can be represented in the form of 24 months or 2 years. Previous research shows that product attribute differences appear larger on scales with a higher number of units (expanded scales, such as 24 months) than on scales with a lower number of units. i.e. contracting scales, such as 2 years (Burson, Larrick,&Jr., 2009; Pandelaere, Briers, & Lembregts, 2011) because most consumers tend to ignore the unit of information, but focus on the number. As neglecting the unit, people often think that the larger number means the more quantity, being more likely to choose the option of 24 months instead of 2 years, and

such number-based inference phenomenon is called ‘the unit effect’ (Pandelaere et al., 2011). However, not all consumers will be influenced by manipulating the unit. It concerns with ability of mathematics and sensibility to the numbers. While comparing with less numerate individuals, highly numerate are more likely to retrieve and use appropriate numerical principles, making themselves draw different affective meaning from numbers and numerical comparisons (Peters, Vastfjall, Slovic, Mertz, Mazzocco, and Dickert, 2006). It is clear that the costumers are affected by the unit differ from their degree of ‘Numeracy.’ As a result, the current study increases an important moderating variable – ‘Numeracy’ to investigate how it moderates the unit effect.

Previous researches about unit effect explained that evaluation of number is based on the concepts of ‘Anchoring and adjustment effect’ (Briers and Lembregts, 2011), ‘Face value effect (Tversky and Kahneman, 1974)’ or ‘Numerosity effect’ (Pelham et al., 1994), but little has been done on the heterogeneity of consumers might have an impact on the decision process. Specifically, this paper aims to discussing the unit effect and the possible moderators to fill the gap.

2. LITERATURE REVIEW

Unit Effect

As a consumer, quantitative information is full of our life, presented in different types of units. is it better). More direct evidence for the unit effect was provided, when consumers evaluate the quantitative information to make decisions, tending to rely on the number (foreground aspect) in front of unit rather than the background aspect (units) (Stone, Sieck, Bull, Yates, Parks, & Rush, 2003). For example, if we ask people to make a choice between two donation programs: donate \$1 per day or \$365 every year, they prefer the former (Gourville, 1998). Likewise, the possibility of winning in the gamble is 9% or 1/10, people tend to choose the former even it is smaller (Pacini & Epstein, 1999). What’s more, when people consume in U.S. dollars, or infer the price in foreign currency, affected by the face value to misjudge the product. For example, 1,100 Korean won seems to be more than 110 Japanese Yen, but they are equal actually (Raghubir & Srivastava, 2002; Wertenbroch, Soman, & Chattopadhyay, 2007). Pandelaere et al. (2011) also proved that the difference between two options consists of more units on expanded scales than differences on contracted scales, which results in inflated perceptions of attribute differences. Moreover, even when both numbers and units are available, salience of one aspect will change perceptions—salient numbers will yield a numerosity effect (Monga & Bagchi, 2012; Pandelaere et al., 2011; Zhang & Schwarz, 2012).

Burson et al. (2009) demonstrated that changing the scale in which attribute information is provided may indeed affect consumer preferences and willing to pay (WTP). For example, participants were asked to choose a plan that allowed them to rent a certain number of movies within a given time on a per week (contracted scale) or a year (expanded scale). However, they chose the more expensive option were presented on per year.

The unit effect mentioned in this study was referenced from Pandelaere et al (2011), mainly focus on the number before the unit, a bigger number or a scale with many units which are called expanded scale. Oppositely, a smaller number or a scale with few units which are called contracted scale. When consumers evaluate the difference between two attribute levels, they may pay more attention to the number of units rather than the type of units, so that it could make a misconception that large number of units means a greater number, this is called "unit effect". The current paper is about to confirm the unit effect, so we hypothesize:

H1: Consumers tend to evaluate the cheaper option more positively when the target option is expressed on a contracted scale, but perceive the more expensive option more positively if the target option is shown in expanded scale.

To test hypothesis 1, participants receive two options of a shop about how many movies they can rent within a given time period in scenario 1, both on week (contracted scale). Given the same cost, consumers should select the plan providing longer phone-call length. According the unit effect, the plan with an expanded scale, compared to one with a contracted scale, should make the number of the length of phone call seem bigger, therefore attracting consumers and increasing the possibility be preferred. The program of this shop is described in option A1: there are 7 available movies per week with NTD 299 monthly rent and option A2: there are 9 available movies per week with NTD 399 monthly rent. After viewing two options of the shop, participants are asked do they agree option 2 is cheaper than option1, on a 6-point scale without a neutral option (6 = very agree; 1 = not very agree). Next, participants receive two options of another shop, in which both the two options are expressed in year (expanded scale). Option B1 is that there are 364 available movies per year with NTD 301 monthly rent, or B2: there are 468 available movies per year with NTD 401 monthly rent, and also evaluate the option B. Similarly, they are also asked do they agree option 2 is cheaper than option1, on a 6-point scale without a neutral option (6 = very agree; 1 = not very agree).

Results and Discussion

There are 62 college and postgraduate students (26men, 36women) from various major from National Cheng Kung University (mean age = 22.4 years; SD = 1.97).

We conducted paired-samples *t*-test for the target option to determine whether they evaluate the target option is significant positive than the other. In these two situations, both of the first options of the shops are cheaper than the second options. In movie videos scenario, we find significantly larger different evaluation when the information is expressed through many units ($p=.001$; see table 1). The result shows that participants evaluate the cheaper option more positively when the number of movies available is expressed in week (contracted scale), but they evaluate the more expensive one which is showed in years (expanded scale) more positively. Correspondingly, subjects evaluate the option with second significant more positive than the option with minutes ($p=.025$; see table 1). So, the first experiment support hypothesis 1.

Table 4 Difference of Evaluation

Condition/ Scale		evaluation of option 2	t	p
Movie				
week	7 vs. 9	2.000	$t(62) = 3.5351$	.001
year	364 vs.468	2.7097		
Telecom				
minute	109 vs.129	2.2742	$t(62) = 2.304$	.025
second	6540 vs.7740	2.7258		

2. NUMERACY

In addition, Pandelaere et al. (2011) discovered that reminding consumers of alternative units can eliminate the unit effect. Nevertheless, few scholars explore if there exists other factors that may moderate the unit effect in actual marketplace. While consumers may differ in how familiar they are with certain attribute information, they also may differ in their ability to

process quantitative information. In particular, some consumers are more “numerate” than others. Peters et al. (2006) demonstrated that the ability to comprehend and transform probability numbers is positively associated to the performance on judgment and decision tasks. Framing effects occur when people react differently to objectively the same information, because it is represented in different forms. Therefore, the current paper posits that highly numerate consumers who are good at calculating and judging quantity are less likely to exhibit the unit effect than do lowly numerate consumers. Additionally, highly numerate people are less likely to exhibit framing effects (Peters et al., 2006). Considering that the unit effect could be regarded a framing effect, the current research investigated whether numerate consumers are less likely to exhibit a unit effect than their less numerate counterparts. If numerate consumers are more aware of alternative units or more readily focus on relative differences than absolute differences when comparing attribute levels, the unit effect is eliminated.

In addition, past studies have found that consumers are influenced by their own math skill, including quantitative and mathematics of probability (Wurm-Schaar, 1995). Participants with strong math skills should be less influenced by the framing of options than those with poorer math skills because such skills would facilitate ‘reframing’ (Simon, Fagley, & Halleran, 2004). That is, consumers consider the product or service information before making decisions, affecting by their mathematical ability. Especially in the situation demand for high level of cognitive load, people with higher mathematical ability, compared to those with low mathematical ability, relatively unaffected by risk selection framework (Simon et al, 2004). Peters et al (2006) also believes that people with high mathematical ability can objectively compare different options, and make an accurate decision and evaluation in accordance with the results of numerical calculations.

3. DUAL PROCESS MODEL

The dual-process model posits that the need for closure influences discriminative facility, which in turn modifies coping flexibility and psychological adjustment (Cheng, 2003). In exploring the impact of different type consumers to the unit effect, the current study quote dual process theories of information processing as a framework to explain this information integration in making quantitative estimations. While these theories were initially developed as theories of persuasion, they were later shown to apply to a range of other judgment contexts (Chaiken, Liberman, and Eagly 1989).

There are two models in Dual process models, one is Elaboration Likelihood Model (ELM, Petty and Cacioppo, 1986), and the other is Heuristic-Systematic Model (HSM, Chaiken, 1987). The two modes can be explained how to influence the effectiveness of the demands (Gawronski and Creighton, 1999).

Based on ELM, consists of two different routes, depending on the motivation and ability of the individual to process the message (Petty & Cacioppo, 1986). If people are incapable or not motivated to process the message, the peripheral route will be follow, such as celebrity endorsers, or background music of advertisements, instead of interpreting information on central route and considering all core information of product, and integrate existing knowledge to evaluate carelessly. The ELM predicts that when messages are processed through the peripheral route, attitudes will be less durable (Petty, Haugtvedt, & Smith, 1995) and less able to predict future behavior than attitude changes through the central route (Petty & Cacioppo, 1983).

HSM includes heuristic process and systematic process (Chen & Chaiken, 1999; Chaiken,

Liberman, & Eagly, 1989). Systematic processing is conceptualized as a comprehensive, analytic orientation to information processing in which perceivers access and scrutinize all informational input for its relevance to the judgment task. On the other hand, heuristic processing is a less effortful and less capacity limited mode. Individuals focus on that subset of available information that enables them to use heuristics, or simple decision rules, to formulate their judgments quickly and efficiently (Maheswaran and Chaiken 1991). For example, people tend to agree with the idea that they like.

Both ELM and HSM is equally applicable, emphasizing that systemic thinking and thinking through central route need higher motivation and ability; heuristic thinking and thinking through peripheral route take less motivation and capability (Gawronski & Creighaon, 1999). Accordingly, the former could make an accurate decision, but the latter could not.

In this study, numerate consumer is defined as a person who would notice the information of both numbers and units, while facing the product attributes related to numbers, and they are able to carry out the conversion between two different units. Dual process model could explain that different types of consumers (highly numerate vs. less numerate) might think in different process. Compared with those who are low numerate, numerate consumers are less possible to exhibit a unit effect, because numerate consumers are more potential to be aware of alternative units or more readily focus on relative differences than absolute differences when comparing attribute levels (Pandelaere, et al, 2011). Thus, we propose:

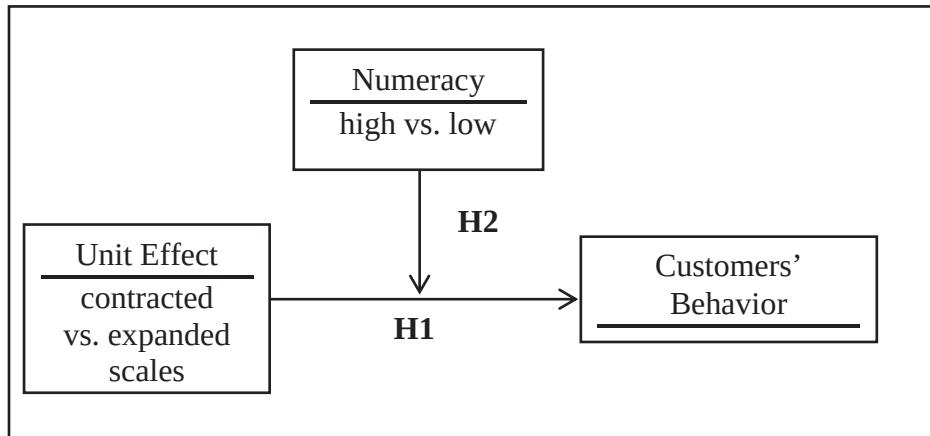
H2: The unit effect is reduced when consumers are numerate, as opposed to those who are less numerate consumers.

The previous demonstrations confirm the unit effect. The second research question is ‘Will the consumers whom are numerate moderate the unit effect?’ The same 62 students are asked to evaluate telecom packages with their new smart phones, and there are two packages in each of two telecom companies. One company expresses the option in minute (contracted scale), and the other shows in second (expanded scales). Moreover, after they finished evaluating, they have to answer 5 mathematic questions for Numeracy. The subjects will be separated into two groups (numerate vs. less numerate) based on the mean: the scores they get are higher than mean are defined as highly numerate consumers, but those who gain scores are lower than mean are defined as low numerate consumers.

4. RESEARCH FRAMEWORK

As shown in Figure 1, we propose that the units are able to influence consumers purchase decisions through presenting in different scales. The options in the study will be shown in contracted scale and expanded scale. We argue that there is a moderator called ‘numeracy’, which is sense to quantitative information. When consumers compare attribute levels, they may not be sure about how to conceive of a given attribute difference (Hsee 1996; Yeung and Soman 2005) and therefore may resort to the numerosity heuristic (Pelham et al. 1994). Consumers’ purchase decisions are the dependent variable to test whether our hypothesis is supported.

Figure 3 Research framework



Subsequently, numeracy is measured through some math questions: (1) If Person A's risk of getting a disease is 1% in ten years, and Person B's risk is double that of A's, what is B's risk? (2) The chance of getting a viral infection is .0005. Out of 10,000 people, about how many of them are expected to get infected? (3) In a LOTTERY, the chances of winning a \$10.00 prize are 1%. What is your best guess about how many people would win a \$10.00 prize if 1,000 people each buy a single ticket from this LOTTERY (Peters et al., 2006)? (4) A college student is going to buy 2 new T-shirts in a department store, and the shop A is promoting their NTD 1,000 T-shirts: every T-shirt can gain 15% off discount; at the same time, promotion program of NTD 1,000 T-shirts in shop B is 'buy the second T-shirt can gain 30% off.' Which shop would you prefer? (5) A civil defense committee in a town met recently to discuss contingency plans in the event of various emergencies. One emergency under discussion was the following: 'A train carrying a very toxic chemical derails and the storage tanks begin to leak. The threat of explosion and lethal discharge of poisonous gas is imminent. If nothing is done, 279 people are expected to be killed.' Two possible actions were considered by the committee. These are described below. Read them and indicate which you would choose. Option A: This option would result in the saving of 93 lives. Option B: This option carries with it a 1/3 probability of containing the threat with a saving of 279 lives and a 2/3 probability of saving no lives (Simon et al, 2004). Option C: Option A and B are the same. The scores are computed with the right answers, and each right answer is record one point

Results and Discussion

The subjects are defined as numerate consumer if the score is higher than mean; otherwise, the subjects who gain the scores below the mean are less numerate ($M = 2.61$; $SD = 1.84$). Also, a separate t -test is conducted to verify a significant different scores between two types of subjects on numeracy ($p = 0.000$; see table 2).

Table 5 Difference of two types of subjects

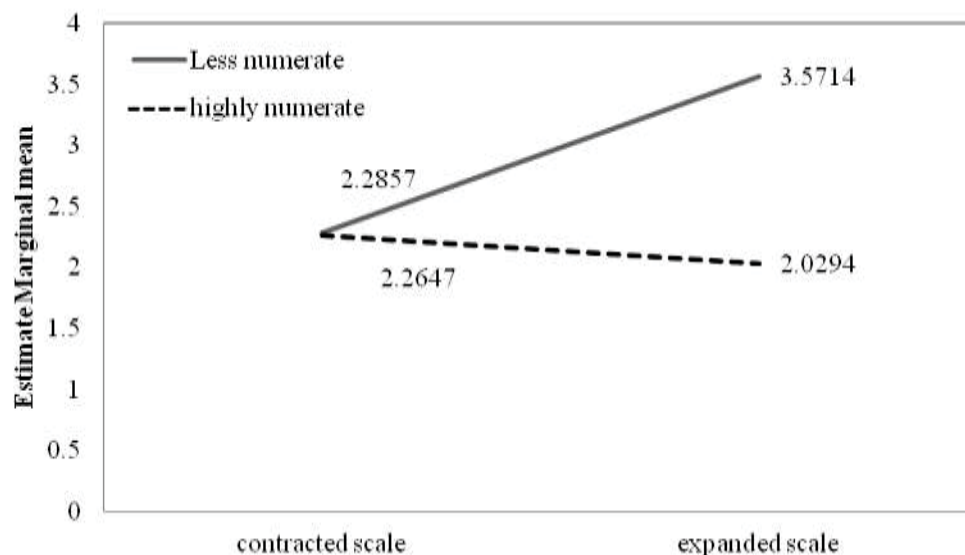
	Levene Test		t –test for equality of Means			
	<i>F</i>	Sig.	<i>t</i>	Sig. (two-tailed)	Mean Difference	Std. Error
Equal variances assumed	2.615	.111	27.050	.000	3.52731	.1304
Equal variances not assumed			26.694	.000	3.52731	.1321

Secondly, the data are analyzed using a 2(scale: conducted vs. expanded) x 2(Numeracy:

highly vs. less) mixed ANOVA. Within the situation of telecom package, we obtained a significant main effect for the scales (expanded scale $M = 2.7258$; contracted scale $M = 2.2742$; $p = .025$); that is, participants evaluated the option of expanded scale to be more positive than that of contracted scale, being consistent with hypotheses 1. Additionally, we obtained a significant interaction effect between scale and numeracy ($F(1,60) = 3.851$, $p = 0.09$; see fig.2). For less numerate consumers, the unit effect is significant, but no significant difference for highly numerate consumers. The different evaluation between two types of subjects is significant.

The result shows that the highly numerate consumers, as opposed to less numerate consumers, would evaluate the cheaper option favorably regardless of the unit presented, and the low numerate consumers would evaluate the cheaper option more favorable when expressed in contracted scale but misunderstand the more expensive one cheaper when shown in expanded scale. Therefore, numeracy is supported to be a moderator.

Figure 4 Results of scales and numeracy



5. GENERAL DISCUSSION

Conclusion

The current paper not only confirms the unit effect but also demonstrates the numeracy moderate the unit effect. The study confirms the unit effect, and answer the first research question: the unit effect will affect consumers' evaluation of the target product. Secondly, the study also indicates that the unit effect is eliminated when the subjects are numerate. The numerate consumers evaluate the more expensive option negatively no matter the selections are present in expanded or contracted scales, but the less numerate consumers prefer the more expensive when the option are showed in seconds. Therefore, the second research question is answer: numeracy will moderate the unit effect.

Based on ELM and HSM, the low numerate consumers are incapable to process the message, so follow the peripheral route, and less effort as well as capacity is needed in heuristic process. Therefore, they are influenced by the unit. Conversely, highly numerate consumers possess higher motivation and ability to access central route, being comprehensive and analytic orientation, so they can scrutinize all informational input to make an accurate decision. Consequently, the unit effect diminishes.

This article suggests that the marketers should develop different marketing plan based on the heterogeneity within consumers. For numerate consumers, using expanded scale to present product is less effective because these tricks might not impress the numerate consumers.

Implications and Further Research

In this research, consumers are distinguished into two types: less numerate and numerate consumers. For low numerate consumers, they are affected by the unit effect easily. The marketers can highlight the advantages of the products by expressing quantitative message in the form of many units, or decrease inferior attribution in contracted scale. Take a milk brand as an example, there is a promotion that consumers can get 100c.c. more with the same price, instead of 0.1 litre. The fastfood companies cannot use kilojoules unit but kilocalories unit to express the energy information. In addition, telling consumers what they eat accounted for 500/1,000 of the day calories required, not 50%, so that people feel that they do not intake too much energy in this meal.

According to the study, the numerate consumers can avoid the influence of the unit effect. We suggest that the heterogeneity among consumers should be considered, and numeracy is one of the important characteristics can influence decision making. Numerate consumers are less likely to exhibit a unit effect than the less numerate counterparts, being more likely to be aware of alternative units or more readily focus on relative differences than absolute differences when comparing attribute levels. We advocate that sales distinguish the consumers' types at first so that they can decide which means to take. If the consumers are numerate types, using quantitative message to present product would be meaningless. The information we transmit may be waste, and the time sales spent may be in vain, because these trick cannot impress the numerate consumers.

However, how to treat those numerate consumers is a key issue for a further direction to explore. In real marketing place, information is getting complex and overwhelming to consumers, making consumers deal with message more difficult and hard to make a decision. Based on the theory of cognitive resources, people have limited cognitive resources, which are allocated to deal with information, when multiple stimuli appear result in cognitive load. Finally, we present a few directions for future research in the current study, exploring the cognitive load becomes an important issue in the decision-making of the people's lives (Fiedler & Garcia,1987), so it might be a possible variable to change the numerate consumers' evaluation. We hope that in addition to the future research in this area, the unit effect as a field of research can attract more scholars to develop a robust unit theory.

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Economics II

Room 608 10:45-12:15, March 17

Session Chair: Dr. Judit Kapás

258

The Weak Form of the Hayek-Friedman Hypothesis

Judit Kapás | *University of Debrecen*

Pál Czeglédi | *University of Debrecen*

058

Revenues resulting from the operation of the funicular in Prague

Radek Kratochvil | *Czech Technical University*

Maria Janesova | *Czech Technical University*

Vladimir Douda | *Czech Technical University*

121

Have manufacturing exports generated employment in Vietnam?

Kien Trung Nguyen | *Australian National University*

132

Financial and Physical Performance of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India

Jitendra Ahirrao | *Smt. Dankunwar Mahila College*

426

A Study on the Influence of Confucian Values on the Performance of Asian Firms

Huei-Ting Tsai | *National Cheng-Kung University*

277

Banking Contagion Risk

Ashwag Dignah | *University Kebangsaan Malaysia*

Radziah Abdul Latiff | *University Kebangsaan Malaysia*

422

Towards a holistic framework to understand entrepreneurship process and venture growth: Entrepreneurial B-C-G Process Model

Una Tumbeswar Rao | *Mudra Institute of Communications*

Hemant C Trivedi | *School of Petroleum Management - PDPU*

Rohit H Trivedi | *Mudra Institute of Communications*

The Weak Form of the Hayek-Friedman Hypothesis

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ABSTRACT

The aim of this paper is to contribute to a theoretical underpinning of the economic freedom–political freedom relationship. In this endeavor we use the theory of social orders (North et al. 2009) to interpret the Hayek-Friedman Hypothesis (HFH), which leads us to propose a new interpretation. The core insight of this *weak* form of the hypothesis is that economic freedom is a necessary condition for *maintaining* political freedom in open access orders, that is, once achieved, political freedom needs economic freedom to be stable; but the HFH is not relevant for limited access orders. Our empirical investigations, based on cluster analyses, survival probabilities and probit regressions, by using a panel database for 130 countries for the period 1970–2005 provide support for the *weak* interpretation.

Key words: economic freedom, political freedom, institutions, social orders

JEL Classification: H11, O10, O57, P50

1. INTRODUCTION

The view that economic freedom is a prerequisite of political freedom originates from Hayek's 1944 book *The Road to Serfdom* and Friedman's 1962 book *Capitalism and Freedom*. This conjecture is generally referred to as the Hayek–Friedman Hypothesis (HFH). While a relatively large number of empirical investigations try to falsify or verify the HFH, theoretical works on the direction of causality between the two freedoms are still missing. However, theoretical arguments would be of great importance since the explanation of the causal relationship is rather unclear in the two books.¹⁷

As a complement to this empirical literature, our aim in this paper is to contribute to a theoretical underpinning of the economic freedom–political freedom relationship. In this endeavor, we will argue that the theory of social orders developed by North et al. (2009) offers a context in which the economic freedom–political freedom relationship can also be given theoretical underpinnings. At the same time, this theoretical framework, which gives an account of the social orders developed in human history as a result of a co-evolution of

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¹⁷ In some instances Friedman and Hayek consider economic freedom a precondition for political freedom: “[h]istory suggests only that capitalism is a necessary condition for political freedom” (Friedman 1962:10), or “[i]t is far more important to realize that only within this system (*capitalism – added by the authors*) is democracy possible” (Hayek 1944[1971]:70); in other instances Friedman refers to the relationship between the two freedoms as being mutually reinforcing or “by no means unilateral” (Friedman 1962:10); or again elsewhere the causality seems to run in the reverse direction, that is, from political freedom to economic freedom: “[e]conomic freedom was the outcome of a free growth of economic activities which had been the undesigned and unforeseen by-product of political freedom” (Hayek 1944[1971]:12).

economic and political institutions, also calls for an interpretation of the economic freedom–political freedom relationship which differs from those present in the literature. This *weak* interpretation of the HFH which we will put forth in the paper suggests that there is no “once and for all” relationship between the two freedoms: based on the theory of North et al. (2009), our major argument will be that the HFH is not relevant for limited access order countries, but its prevalence is an inherent attribute of open access order countries, and here economic freedom is a necessary condition for *maintaining* political freedom.

We will formulate several propositions stemming from this argument and will investigate them empirically. We will use an unbalanced panel database for 130 countries for the period 1970–2005, in which political freedom is measured by the Freedom House’s indexes of civil liberties and political rights, and economic freedom is measured by the Fraser Institute’s Economic Freedom of the World (EFW) Index.¹⁸ As the first step, in line with our theoretical model in which the natural empirical method is cluster analysis, we will identify the four clusters corresponding to the various economic freedom–political freedom combinations of the social orders. Here our major concern will be the clusters’ stability and will use various techniques, e.g., survival probabilities. As the second step, we will transform our propositions into testable hypotheses and will turn to regression analyses to check them. The results provide support for our conjectures.

The rest of the paper is organized as follows. In Section 2 we will summarize the empirical results of the literature on the HFH. Then, in Section 3, we will present the theoretical framework, provide a new interpretation of the HFH and lay down our hypotheses. Section 4 will deal with the empirical analyses, and Section 5 will conclude.

2. The empirical account of the economic freedom–political freedom relationship: a review

There is a relatively widespread literature which, by applying the econometric methods developed mainly in growth econometrics, examines the nature of the relationship between economic and political freedom. What, in most cases, lies behind these investigations is the view that economic, political and civil freedom go hand in hand, and they are mutually enhancing.¹⁹ One major branch of the relevant literature is primarily interested in investigating the effects of economic freedom on development; and as a by-product tries to test whether higher economic freedom correlates with a higher level of other kinds of freedom.

In this spirit, Dawson (1998) deals with the relationship between the two kinds of freedom. He finds that while it is true that political freedom promotes economic freedom, it is also true that a change in economic freedom promotes political freedom. One of the conclusions drawn by Farr et al. (1998) is not perfectly in line with Dawson’s argument: by running the Granger-causality test on the sample of 78 industrial and non-industrial countries between 1971 and 1995 they come to the conclusion that higher GDP per capita leads to higher political freedom, while higher economic freedom does not.

The causality of the reverse direction is investigated by De Haan and Sturm (2003) since they

¹⁸ Political freedom is present in situations in which citizens are completely free to participate in the political process; elections are fair, competitive and corruption-free; and different political parties can participate in the political process. Civil liberties include freedom of the press, association, religion and speech. Economic freedom is understood as what is measured by the Economic Freedom of the World (EFW) Index (Gwartney, Lawson and Hall 2011).

¹⁹ Later we will differentiate between three possible interpretations of the HFH. This separation is not made here, because it is not made in the literature we are just about to review.

pose the question of whether more democracy²⁰ leads to more economic freedom, or whether an autocratic regime is in a better position to introduce liberalization measures. When examining this question on a sample of developing countries with robust regression methods and panel regression they find that the level of civil and political freedom and the length of the period a country has been a democracy predicts the change in economic freedom, and this relationship is robust; that is, it is not the result of some outliers in the sample.

Similarly to De Haan and Sturm (2003), Lundström (2002:11-32) examines the effect democracy has on economic freedom in a sample of 58 developing countries during the period between 1975 and 1995. Using different robustness checks, she concludes that, beside the EFW Index itself, two of its four components are significantly increased by more democracy: “government operations and regulations” as well as “restraints on international exchange”. Framing the problem in a broader context, Giavazzi and Tabellini (1995) focus on economic and political liberalizations. Using difference-in-difference estimation, they analyze empirically the effects and the interactions of the two liberalization processes on economic performance, macroeconomic policy and structural policies. They find on the one hand, that economic and political liberalizations are mutually reinforcing, and on the other hand, that the sequence of reforms matters: countries that first liberalize the economy and then become democracies do much better than countries that pursue the opposite sequence.

Thies (2007) results by confirming the findings of others with regard to the effect of economic freedom on economic growth, also adds to our understanding of the relationship between economic and political freedom. For the period 1975-2005, he finds that political freedom is positively associated with economic freedom, and furthermore, that political freedom is a cause of economic freedom. There is, however, only weak evidence that economic freedom is a cause of political freedom. That a democracy should not be a barrier to the extension of economic freedom either is shown by Greskovits (1996), who, with the example of Eastern–Central Europe (as opposed to that of Latin-America) demonstrates that democracy is not necessarily a “threat” to market-oriented reforms. On the contrary, democratic institutions make it possible for these reforms to take place in a predictable way.

Still in this fashion, Vanssay et al. (2005) give an empirical answer to the question of what it is that gives a country more economic freedom. From the regressions, they come to a not particularly surprising conclusion that a country with a high level of economic freedom will have a parliamentary political system, in which the chief executive is not a military officer, does not serve special interests and does not control both houses of the parliament. Furthermore, a high-level of economic freedom is associated with a low-level of political concentration and a high-level of decentralization (federalism). However, when dividing the sample into OECD and non-OECD countries the test is rather inconclusive.

Some authors come to a skeptical conclusion concerning whether political freedom is needed for a higher level of economic freedom. Bearing in mind that economic freedom is to a large extent shaped by economic policy, the argument of Mulligan, Gil and Sala-i-Martin (2004) that democratic countries do not have better economic policies than autocratic ones, weakens the claim that political freedom enhances economic freedom. They emphasize that economic policy outcomes are affected to a much greater extent by factors other than democracy, such as population, income or legal origin. Moreover, they do not find any systematic relationship between democracy and various characteristics of public policies such as government consumption, education or social spending, or redistribution. These results show that the constraint which encourages politicians towards better policies is not democracy, at least not when it comes to the usual measure of fiscal policy. This conclusion is in line with that of De Haan et al. (1999), stating that even if one looks at democracies, it is relatively difficult to

²⁰ Democracy is used in the sense of political freedom.

show that government spending is shaped by the dispersion of parties within the government. They find that this can only be concluded if one looks at the growth of the central government's debt. In concert with these results Besley and Kudumatsu (2008) provide reasons to explain why an autocratic leader may apply "better" policies than a democratic one: one group should be powerful enough, that is, they should be sure that their group will remain in power even if they decide to fire the leader, and distributional issues should be important enough.

The results of Wu and Davis (1999) support the skeptical view, too. However, as regards the HFH, their conclusion is somewhat ambiguous because, on the one hand, they find that the model that supposes an association between economic and political freedom fits the data better, while on the other hand, they conclude that economic development fosters political freedom independently of any improvement in economic freedom itself.

Taking a slightly different and broader perspective on economic freedom than usual, Pryor (2010) concludes that although there is a cross-sectional positive correlation between political freedom and capitalism, there seems to be no relationship when one looks at historical data going back to the 19th century. However strong this conclusion is, Lawson and Clark (2010) come to just the opposite one, examining cross country data over the 1970-2005 period. According to their results, there is hardly any country with "relatively" high political and low economic freedom.

Beside the econometric literature discussing the direct effect between the two freedoms, a fast-growing body of the empirical investigations on economic growth is now identifying indirect channels between economic and political freedoms. The main conclusion that can be drawn from this literature²¹ is that some measure of economic development, such as "cosmopolitan values" (Lipset 1959, 1994), income (Barro 1997, 1999, 2000, Paldam 2007) or human capital (Glaeser, La Porta, Lopez-De-Silanes and Shleifer 2004, Glaeser, Ponzetto and Shleifer 2007) may be an intermediate factor between economic and political freedom²², if one accepts the commonly held view that economic freedom promotes income and growth (see Czeglédi and Kapás 2009). In sum, the indirect causal relationship suggested by this line of the literature (for us a kind of a digression) is that economic freedom enhances development, and a higher level of economic development helps democratic institutions develop. This interpretation is in line with the results of Faría et al. (2010) who also try to clarify the relationship between economic freedom, income, and political freedom. What they conclude by applying advanced methods using instrumental variables (panel data over a 30-year period with five-year intervals) is that in the short run economic freedom is a better predictor of democracy than income, while in the long run income is the better predictor.

As can be seen from the above brief review, the empirical results concerning the relationship between the two freedoms can hardly be said to be converging toward a widely-accepted result. Besides this, even the basic definitions themselves do not mean the same to different researchers, and there seems to be no consensus on the question of which is the proper method to examine empirically the proposition in question. Possible causality mechanism are also much debated, not to mention the direction of causality. Basically, we see that the above-summarized literature centers around two different interpretations of the HFH. These are as follows:

(1) Strong interpretation (economic freedom is a sufficient condition of political liberalization): economic freedom promotes political freedom, and a rise in economic

²¹ It is beyond the scope of our paper to present this literature in more detail.

²² Acemoglu et al. (2005, 2008) provides evidence meant to falsify both views, which does not convince Gundlach and Paldam (2008). Fukuyama (1992) also emphasizes that there is no deterministic relationship between democracy and development, and *consequently* capitalism (economic freedom) is compatible with many forms of authoritarian government.

freedom will consequently be followed by a rise in political freedom (e.g., Farr et al. 1998, Pryor 2010).

(2) Semi-strong interpretation (economic freedom is a necessary condition of political freedom): without economic freedom political democratization will not be very probable, and an undemocratic country with a higher level of economic freedom will have a better chance of becoming a democracy than one with a low level of economic freedom (e.g., Giavazzi and Tabellini 2005, Lawson and Clark 2010).

To sum up, since neither Hayek nor Friedman provided a well-specified theoretical reasoning of the process or mechanism responsible for the co-movement of political and economic freedom, empirical investigations on the topic suffer from the absence of a theory. In what follows we will argue that the theory of social orders developed by North et al. (2009) proves itself not only a useful theoretical framework for an understanding of the relationship of the two freedoms, but at the same time, calls for a different interpretation of the HFH which, unlike those in the literature, is driven by theory.

3. The theoretical framework and the *weak* interpretation of the HFH

North et al. (2009) present a powerful new theory of the interaction between law, politics, and economic development, in the framework of which the economic freedom–political freedom relationship can also be given theoretical underpinnings. The starting point from which they develop their ideas is the view that the fundamental problem that any society must solve is the problem of violence. Societies differ in how they can control violence, but basically as North and their co-authors argue, three types of social orders²³ have emerged in human history to control violence, each creating inherently different institutions. These are as follows: foraging or primitive order²⁴, limited access order, and open access order. Each order is characterized by a particular system of political, legal and economic institutions, evolved in close connection to one other, able to specify and enforce rules by which individuals interact. As societies develop, their institutions evolve from foraging order to limited access order, which is the default social order, and eventually to open access order.

Limited access orders control violence by political manipulation of the economy to create rents for the ruling elites. These privileges then, in their turn, limit the use of violence by powerful individuals: potential rivals stop fighting (or fight less) when the economic rents they enjoy depend on the continued existence of social order. In this order most valuable resources and markets are controlled by politically connected elites, and the creation of economic and political organizations is restricted to those belonging to the elites. Thus the prevailing system of political, legal and economic institutions serves to limit economic entry to create rents and then use those rents to credibly commit powerful groups to support the state. Here the ruling elite uses the economic system as a tool to solidify its stability, and the ruler protects the privileges granted to elite groups against encroachment by others.

The limited access order, as conceptualized by North et al. (2009), is clearly an order in which the institutional setting is autocracy, together with only few organizations, most of which are associated with the state. North and his coauthors emphasize that this order is very stable which, however, may undergo an evolution. The *basic* limited access order is the one in which markets are underdeveloped and monopolized. But in countries where the ruling elites are able to credibly commit to not fight, it may be in their interest to promote economic growth through trade and markets, to the extent that these markets can be controlled and provide another source of rent for them. In that way, the *basic* limited access order may

²³ By social order they mean the complex of military, political, economic and religious institutions of social organization.

²⁴ The primitive order, since it is a characteristic of hunter-gatherer societies, is not analyzed in the book.

develop into *mature* limited access order in which markets are much more developed. But this does not mean that there are competitive markets and free entry, instead the inherent constraints on markets are present here, too, just as in the *basic* limited access order: the creation of economic organization is still the privilege of the elites. While political and civil rights are not guaranteed in the *mature* limited access order, economic freedom is higher compared to the *basic* limited access order. Of course, this does not constitute a state of economic freedom as understood in terms of the HFH.

A third type of limited access order, called a *fragile* limited access order is also distinguished by North et al. (2009). Here the ruling elite can hardly sustain itself in the face of external and internal violence; the organization called the “government” has no monopoly on violence. Countries under this order are very unstable and have a very simple institutional structure for the government. The potential for violence is the major determinant of the distribution of rents; accordingly, no private organizations are supported in this order. *Fragile* limited access order countries are the poorest in the world.

North et al. (2009) argue that only a few (about two dozen) societies have evolved into open access order. So the transition from a limited access order to an open access order is very rare and very difficult, and has three doorstep conditions²⁵ as they term it. Following the line of reasoning concerning the shift from a *basic* to a *mature* limited access order (see above) which is by no means automatic and irreversible, it becomes clear that an increasing sophistication of organizations, first of all economic organizations, lies at the heart of the whole process. Due to a proliferation of (economic) organizations, the privileges individuals enjoy turn into rights that are associated with their positions; then various institutions are created to protect these rights and allow rights to be extended to a larger segment of the population. But for this process to occur elites must be sure that they will have an advantage when converting their privileges into rights. A consequence of the occurrence of rights is that it opens up parties and politics, and economic and civil organizations, by creating competition in political and economic systems, and this competition limits violence in a very effective way. Accordingly, competitive political and economic systems are the defining characteristic of open access order: on the one hand, the economy contains competitive markets – rather than highly controlled markets to create rents for the elites, and on the other hand, citizen’s rights do not depend on a political relationship to those in power, but derive from the fact of citizenship.

On the basis of historical facts, provided in great number in North et al. (2009), it is clear that a transition from a limited access order towards an open access order, or a transition from a *fragile* or *basic* limited access order towards a *mature* limited access order was initiated by an increase in economic freedom.

To sum up, open access order countries exhibit high levels of economic and political freedoms. And what is more, a high level of both freedoms is an inherent attribute of this order. So, the group of open access order countries is precisely that with which the HFH has to be associated. It is also clear that a violation of the HFH, i.e., a reduction in economic freedom while maintaining the high level of democracy, is against the logic of this order, and accordingly, it cannot be an equilibrium, but a transitory state. The above argumentation can also be expressed from the perspective of the limited access order: the HFH is not relevant for the limited access order; accordingly, a violation of the HFH cannot be a characteristic of this order.

Thus our interpretation of the HFH, which stems from the above theoretical framework, is the following: economic freedom is an important factor that helps maintain political freedom in

²⁵ These are as follows: (1) rule of law for elites, (2) perpetually lived organizations in the public and private spheres, and (3) consolidated control of the military.

open access order countries but it does not necessarily have a role in promoting political freedom. This interpretation can be called a *weak* interpretation of the HFH. Put differently, it says that economic freedom is a necessary condition of maintaining political freedom, i.e., once achieved, political freedom needs economic freedom to be stable in this order. Practically, this means that a democratic country with a high level of economic freedom will have a better chance of not becoming undemocratic than a democratic country with low economic freedom.

As a summary, the following propositions can be made:

(1) There seems to be no “once and for all” relationship between political and economic freedom. High levels of both types of freedom are an inherent attribute of open access orders, while a low level of political freedom is an inherent characteristic of limited access orders which can be sustained both with a low level, or with a relatively high level of economic freedom.

(2) Open access orders are stable systems, accordingly the combination of high levels of economic and political freedom is stable, too, and a reduction in economic freedom should be only transitory in this order.

(3) The HFH is not relevant for limited access orders. Here political freedom is inherently low, which can be sustainable with both high level and low level of economic freedom. But the prevalence of high levels of both freedoms should be transitory in this order.

Below we will conduct empirical investigations with the aim of providing support in favor of the weak interpretation of the HFH.

4. EMPIRICAL ANALYSIS

For our empirical analyses we constructed a panel dataset on as many countries as possible over the longest possible period. The bottleneck here has been data on economic freedom. We have stayed within the limits of the commonly agreed measures of both freedoms; accordingly we have used the Economic Freedom of the World (EFW) Index as a measure of economic freedom, while political freedom is the mean of civil liberties and political rights – measured and published by Freedom House –, where both are measured as averages over five year intervals. Economic freedom was measured every five years between 1970 and 2000 and has been measured yearly since then, while political freedom has been measured yearly since 1972. The EFW Index runs between 0 and 10, where higher values represent higher economic freedom, while political freedom is measured on a 7-point scale where lower values represent higher political freedom.

Our political freedom data is the average of political rights and civil liberties over a five-year period that follows (and includes) the year in which the data for economic freedom is measured. The reason for this time-lag in political freedom is the commonly-held view in the literature that it takes time for economic freedom to exercise its full effect. Our unbalanced panel dataset includes 130 countries and covers the years from 1970 to 2005.

Figure 1 is a scatterplot for our full panel dataset. Even a brief look at the figure suggests that it could hardly be said that there is a linear relationship between economic and political freedom, and, as we proposed above, based on the theory of social orders (North et al. 2009) we have good theoretical reasons to reject the linear association of the two freedoms (see our first proposition). Since the theory suggests that different social orders may have different combinations of political and economic institutions, as a first step in our empirical investigations, cluster analysis seems to be a fruitful method for our purpose.

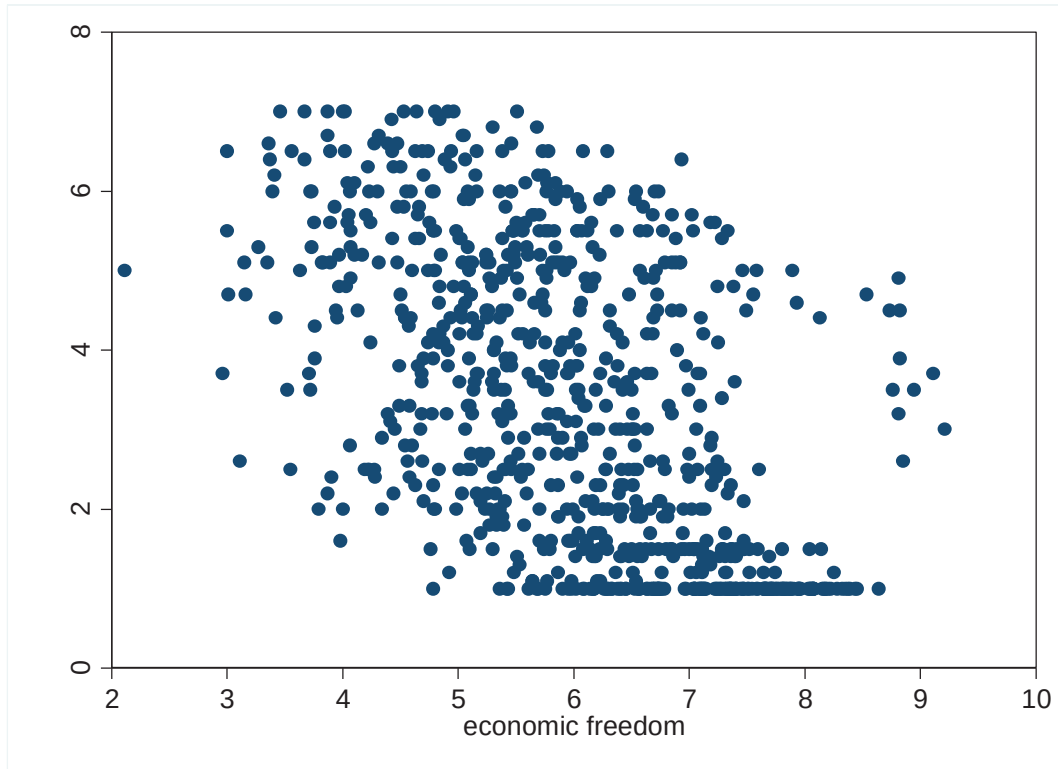


Figure 1: Scatterplot between economic freedom and political freedom²⁶

4.1. Cluster analysis

4.1.1. The four clusters

We ran a K-means cluster analysis on our panel database. We assume four clusters, an assumption given theoretical underpinning by the theory of North et al. (2009), but also in line with Lawson and Clark (2010) who propose a 4-rubric matrix for the possible (feasible) economic freedom–political freedom combinations. The four clusters defined in advance are as follows: (in the abbreviation of the clusters we stick with those used by Lawson and Clark 2010)

- PF-NEF: high political freedom with low economic freedom
- NPF-EF: low political freedom with high economic freedom
- NPF-NEF: low political freedom with low economic freedom
- PF-EF: high political freedom with high economic freedom

The PF-EF cluster is considered to include open access order countries, PF-NEF represents the violation of the HFH, and the remaining two clusters are deemed to incorporate limited access order countries. Table 1 shows the cluster centers (for the list of the composition of the clusters see Tables A1-A4 in the Appendix, for development data on the clusters see Table A5 in the Appendix). The four clusters correspond clearly to Lawson and Clark’s (2010) categories (see Table 1 and Figure 1).

²⁶ West and East Germany are treated separately by the Freedom House for the years before 1989, but the EFW Index includes only “Germany” for all years. We used the political freedom of West Germany for the periods before 1989.

Table 1: Cluster centers

	Cluster			
	PF-NEF	NPF-EF	NPF-NEF	PF-EF
Political freedom	2.57	4.60	5.73	1.35
Economic freedom	5.37	6.23	4.62	7.12

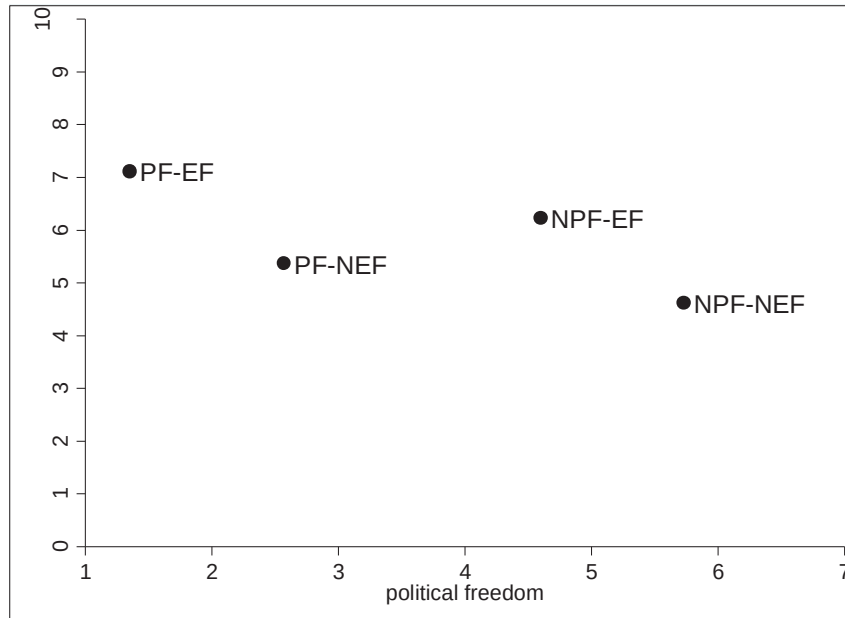


Figure 2: Cluster centers

Let us take a look at the composition of the clusters. The PF-EF cluster, as expected in the spirit of our theoretical framework, includes all “classical” open access order countries, such as for instance Australia, Belgium, France, Germany, Japan, the UK or US. What is more, 17 of these countries (see Table A4) are classified into this cluster for the whole period, while some of them such as Sweden, Iceland and Italy are not this cluster for one or two period. Another group of open access order countries are the post-socialist countries such as Hungary, the Czech Republic, Latvia or Lithuania, due to their successful political and economic transformation. As for the remaining countries which, at least at first glance, do not seem to be open access orders, there is a need for further investigation as regards whether they fulfill the doorstep conditions laid down by North et al. (2009) (see footnote 9). To check this we turned to Gollwitzer and Quintyn (2012) who systematically collect data on this matter, but only for developing countries. We applied their method to collect data for the remaining countries. We faced two problems when collecting the data, however. Although Gollwitzer and Quintyn (2012) use many different data sources, some of them were unavailable for some countries in our sample; in addition, there is a considerable overlap between the data they use and our economic freedom data. Thus, taking into account all data constraints, we ended up using only five²⁷ of the eight measures of Gollwitzer and Quintyn (2012). Based on the averages of these variables as rough measures for the fulfillment of doorstep conditions, there seems to exist a third group of open access orders that includes some “emerging” cases such as Uruguay, Peru, Chile and Taiwan that meet the doorstep conditions; and South Africa and Israel that are on the verge of doing so. There remain, however, some countries that are

²⁷ These are as follows: the existence of rules for the elite, the elite’s respect for and compliance with the decisions of the courts, the ease of creating organizations, military interference in political life, the level of armed violence.

classified for various periods as being in this cluster, but clearly do not pass the doorstep conditions (e.g., Costa Rica, Jamaica, El Salvador, Botswana, Namibia).²⁸

Taking all the above into account, our proposition concerning the association of the open access orders with the HFH runs as follows: a high level of democracy with high economic freedom gives a very stable status quo only in open access order countries. But this does not mean that a high level of democracy with high economic freedom is a characteristic only of an open access order country; instead, this may prevail, but with less stability elsewhere, too. This proposition supports the weak interpretation of the HFH.

The PF-NEF cluster, which violates the HFH, is diverse as regards its member-countries. One group of countries here is that of the post-socialist countries, after as well as before, the fall of communism (e.g., Hungary in 1990, Poland in 1990 and 1995, Romania from 1995 to 2000 and Latvia in 1995). After a while, the most advanced post-socialist countries caught up with the most developed countries in terms of political and economic freedom, which clearly means that these countries are included in this cluster for a given period because the political transformation was faster than the economic one. Accordingly, we do not see their being here as a violation of the HFH, but rather as a phase in their institutional development. However, some “classical” open access order countries such as Italy, Iceland and Sweden fell back for a very short period of time into this cluster (probably because of larger government intervention in the economy), so their being here is clearly transitory, as suggested by the theory, too.

This cluster also includes several developing countries for various years from Latin America, Africa and Asia. What is interesting, and seems to contradict the idea arising from the theory, namely that countries’ being in this cluster should be transitory, is the fact that some countries are here for a long period of time: India for the whole period, and, for instance, Ecuador, Turkey, Senegal and Argentina for almost the whole period. However, for countries such as Israel and South Korea their being here has to be seen as a phase in their liberalization–democratization development. Some countries such as Belize or Mauritius, which are classified into the PF-EF cluster for certain periods, are also here for some other periods, which shows that they are on the verge of open access order. All in all, except for very few cases; this cluster is a “passage-way”, as is also suggested by the theory.

The other two clusters (NPF-NEF and NPF-EF) include non-democratic (limited access order) countries. In the NPF-NEF cluster one finds those autocracies that did not liberalize their economies, and are the poorest countries in the world (e.g., Democratic Republic of Congo, Malawi, Nigeria, Iran) (for development data see Table A5 in the Appendix). Some post-socialist countries are also here in their early transition years. Countries in the NPF-EF cluster have liberalized their economy, such as Singapore for the whole period, Thailand and Guatemala in several periods, South Korea from 1975 to 1980, and the oil countries (Bahrain, Kuwait, and United Arab Emirates). The NPF-NEF cluster comprises *basic/fragile* limited access order countries; the NPF-EF *basic/mature* limited access order countries.

4.1.2. Cluster stability

As argued above, what the weak interpretation of the HFH suggests is that the PF-EF cluster should be the most stable, while the PF-NEF cluster should be unstable. As for the other two clusters, based on North et al. (2009) they should be relatively stable since limited access orders, which these two represent, are seen as stable orders. So, an examination of cluster stability is one way to investigate the HFH.

However, counting the cases in each cluster does not provide information as regards cluster

²⁸ Data is missing for a few countries (e.g., Belize, Barbados, Malta, Trinidad and Tobago). Data is available upon request.

stability because it does not reveal whether a cluster includes many countries which have been in that cluster for only a short period of time, or fewer countries which have been there for a longer period of time. A useful but simple way to obtain information on the stability of each cluster is to look at the average number of periods spent in a cluster once a country is in a given cluster. After having done this simple calculation (see Table 2) it turns out that in line with the weak interpretation of the HFH, the PF-EF cluster seems to be very stable because once a country becomes a member of this cluster it will remain there for the longest period (4.2 periods, that is, 21 years).

Table 2: Data on cluster stability

	Cluster			
	PF-NEF	NPF-EF	NPF-NEF	PF-EF
Number of countries that spent at least one period in the cluster	70	64	52	66
Average number of periods spent in a cluster once a country is there	2.67	2.80	3.27	4.20

The NPF-NEF cluster is also relatively stable, which is not a surprise since autocracies can be long-lasting, and as our results show autocracies that do not liberalize their economies (low economic freedom) emerge more frequently than autocracies that do. As for the cluster that violates the HFH (the PF-NEF cluster), what can be concluded here is that this cluster is the least stable because the fluctuation is very high.

However, we do not intend to suggest that far-reaching propositions can be reached on the basis of Table 2. The simple conclusion that arises from this table is that the weak interpretation of the HFH is not refuted, even if it is not given strong support. So, further investigations related to cluster stability may be useful. In this spirit we created a matrix (Table 3) which shows the probabilities in which cluster changes occurred, including those in which a certain country did not change cluster. A number in row i and column j of Table 3 shows what fraction of the countries that had been in cluster i in year t moved to cluster j in year $t+5$. Consequently, the main diagonal of the matrix shows the share of those countries in each cluster that remained in the same cluster between two five-year long periods. For instance, the matrix shows that 23.7 percent of the cases in which a country was in the cluster PF-NEF in year t was followed by a switch of the same country to the cluster PF-EF until the year $t+5$. Such a matrix can be called a transitional matrix, because it provides an estimate of the probabilities with which a country switches to another cluster between two consecutive periods.

Table 3: Transitional matrix

		cluster in period $t+5$			
		PF-NEF	NPF-EF	NPF-NEF	PF-EF
cluster in period t	PF-NEF	0.598	0.130	0.036	0.237
	NPF-EF	0.189	0.678	0.091	0.042
	NPF-NEF	0.106	0.219	0.675	0.000
	PF-EF	0.046	0.009	0.000	0.945

These probabilities reaffirm that the PF-EF cluster is the most stable: a country that had been in this cluster remained there for the next period in 94.5 percent of the cases. Another important result is that the most probable move for a country in the PF-NEF cluster (violating the HFH) is towards the PF-EF cluster, which is in line with what we proposed above. This

may also suggest that the PF-NEF status is not stable, and probably a country's being here is only transitional, representing either a phase in its democratization-liberalization developmental path, or a fall back from the PF-EF cluster.

Furthermore, while Table 3 provides support for the weak interpretation of the HFH, similar support for the other two interpretations cannot be concluded. According to the strong interpretation, the main output direction for the cluster NPF-EF should be the PF-EF cluster. This claim is hardly affirmed, since this output possibility is the least probable. The semi-strong interpretation could be given support by a result showing that the probability of entering the PF-EF cluster from the NPF-EF would be greater than entering it from the PF-NEF. This prediction is also falsified by the data in Table 3. The weak interpretation can be given much more support. The change that clearly violates the claim that economic freedom is a necessary condition for sustaining political freedom, a move from the PF-EF cluster to the NPF-EF, is very rare. In fact, there is only one such case in our sample: Hong Kong.

The stability of the clusters, especially the stability of the PF-EF cluster, can be approached from a different angle, too, by calculating survival probabilities as suggested by Kaplan and Meier (1958). In our case survival probability p_{it} (in Table 4) is the estimation of the probability of a country's being in a certain cluster in a certain period, provided that the given country entered the given cluster. Survival probabilities for period 1 are 1 by definition. Survival probabilities for each cluster in period 2 are calculated as the ratio of the number of those countries that were in the given cluster for two periods and the number of those that were in the same cluster in period 1 (and were in a different cluster in period 2); those countries whose data are unavailable for period 2 affect neither the denominator nor the nominator of this ratio. The survival probability for further periods is the product of these survival probabilities from one period to the other.

Table 4: Survival probabilities for the 4 clusters

	Survival probabilities in different periods							
	period 1	period 2	period 3	period 4	period 5	period 6	period 7	period 8
PF-EF	1.00	0.88	0.82	0.82	0.78	0.78	0.78	0.78
PF-NEF	1.00	0.60	0.35	0.21	0.13	0.07	0.04	0.04
NPF-EF	1.00	0.64	0.34	0.19	0.13	0.06	0.03	0.02
NPF-NEF	1.00	0.63	0.45	0.28	0.21	0.15	0.12	0.08

It is clear from Table 4 that the most stable cluster is the PF-EF one: having once entered this cluster, the chance of a country's remaining in the same cluster in the 8th period is 78 percent, while for the PF-NEF cluster it is only 4 percent. What is more, the survival probabilities decrease very drastically in this cluster from one period to another. This shows in our opinion that countries are basically here for a transitory period. All in all, survival probabilities provide support for what we have argued above.

4.2. Regression analysis

4.2.1. Hypotheses and the model

Above we got some first-hand supports for our propositions, but of course we need to find some stronger ones through more sophisticated investigations. For this purpose, we have to transform our general propositions 1-3 laid down in Section 3 into more concrete and testable ones.

To arrive at our weak interpretation, the strong interpretation of the HFH must be weakened in two ways. First, the HFH is not claimed to be relevant for all countries irrespective of their political and economic institutions; instead it is only the set of open access orders among

which we claim it holds. Second, the HFH is not claimed to be symmetric in the sense that what is true under undemocratization is also true under democratization. Our argument is only concerned with the deterioration of political freedom (undemocratization).

With these restrictions in mind, some hypotheses of a more operational kind can be derived from our general propositions in Section 3 in the following form.

- (1) The probability of a change in political freedom is not related to economic freedom among limited access order countries.
- (2) A higher level of economic freedom reduces the probability of a reduction in political freedom within open access orders.
- (3) The probability of a change in political freedom will be the greatest one among those open access orders in which the HFH is violated.

As a test of the above hypotheses we ran probit regressions in the following forms:

$$(1) \quad (\text{increase in political freedom})_{i,t,t+4} = \beta_0 + \beta_1 \times (\text{political freedom})_{i,t} + \beta_2 \times (\text{economic freedom})_{i,t} + \varepsilon_{i,t}$$

$$(2) \quad (\text{decrease in political freedom})_{i,t,t+4} = \beta_0 + \beta_1 \times (\text{political freedom})_{i,t} + \beta_2 \times (\text{economic freedom})_{i,t} + \varepsilon_{i,t}$$

$$(3) \quad (\text{change in political freedom})_{i,t,t+4} = \beta_0 + \beta_1 \times (\text{political freedom})_{i,t} + \beta_2 \times (\text{economic freedom})_{i,t} + \varepsilon_{i,t}$$

where

$(\text{increase in political freedom})_{i,t,t+4}$ is the frequency with which political rights or civil liberties has *improved* during the five years between year t and t+4,

$(\text{decrease in political freedom})_{i,t,t+4}$ is the frequency with which political rights or civil liberties has *deteriorated* during the five years between year t and t+4,

$(\text{change in political freedom})_{i,t,t+4}$ is the frequency with which political rights or civil liberties has *deteriorated or improved* during the five years between year t and t+4,

$(\text{political freedom})_{i,t}$ is the average of political rights and civil liberties in country i in year t,

$(\text{economic freedom})_{i,t}$ is the level of economic freedom in country i in year t.

In what follows we will test the above hypotheses with probit regressions. That is, we will first ask the question whether higher economic freedom has an effect on the probability of a change in political freedom in open access orders that is different from the one which it has in limited access orders. Then we will also test the hypothesis that higher economic freedom has an effect on the probability of a decrease in political freedom in open access orders that is larger than the effect it has on the probability of an increase in political freedom in limited access orders. That is, the probit regressions to follow can be seen as a sort of testing the claim that the HFH does not work in the same way in each kind of social order.

The problem is, of course, how to identify different kinds of orders. We will apply two methods. First, we will use our classification that comes from the above cluster analysis and associate the countries in the PF-EF cluster with open access orders and those in NPF-NEF and NPF-EF with limited access order. This is important for us because our intention is to use the clusters as proxies for different social orders (see Section 4.1.1.) Second, we will use the index developed by Gollwitzer and Quintyn (2012) to get an alternative measure for the same

purpose.

4.2.2. Clusters as kinds of social orders

Table 5a, 5b and 6a, 6b show the answers our data give to the two questions we just raised. Table 5b and 6b show the marginal effects at the means calculated from the results of Table 5a and 6a. Accepting this classification, the results of Table 5a and 5b support our claim that higher economic freedom makes the political institutions more stable, but this is relevant only in the case of open access orders. In the total sample the effect of economic freedom on the probability of a change in political freedom is significant at the one percent level even if political freedom is added as a determinant (column 2 and 3 in Table 5a and 5b). However, when splitting the sample into two parts – members of the PF-EF cluster and the rest – it is only the PF-EF cluster within which the relationship still holds statistically significant with the usual significance level. Column 5 in Table 5b shows that a one-unit change in economic freedom will reduce the probability of a change in political rights or civil liberties in the next five-year interval by 0.160. This effect is almost twice as large as the one derived for the full sample (column 3 in Table 5b).

Table 5a: Probit regressions on the change in political or civil rights within different clusters

	probability of a change in political rights or civil liberties in five year interval					
	total sample		PF-EF cluster		other three clusters	
constant	2.754 (10.00)***	1.271 (3.68)***	2.226 (2.56)***	1.150 (1.23)	0.964 (2.92)***	1.118 (2.76)***
economic freedom	-0.393 (-9.07)***	-0.243 (-5.15)***	-0.375 (-3.06)***	-0.458 (-3.61)***	-0.022 (-0.37)	-0.029 (-0.48)
political freedom		0.178 (5.51)***		1.178 (6.25)***		-0.028 (-0.63)
pseudo r2	0.100	0.132	0.030	0.196	0.000	0.001
number of observations	813	813	277	277	536	536

Table 5b: Probit regressions on the change in political or civil rights within different clusters, marginal effects at the means

	probability of a change in political rights or civil liberties in five year interval					
	total sample		PF-EF cluster		other three clusters	
economic freedom	-0.145 (-9.15)***	-0.089 (-5.19)***	-0.135 (-3.07)***	-0.160 (-3.68)***	-0.006 (-0.37)	-0.008 (-0.48)
political freedom		0.065 (5.62)***		0.412 (5.91)***		-0.008 (-0.63)
number of observations	813	813	277	277	536	536

In Table 6a and 6b we compare the effect of higher economic freedom on the increase in political freedom within the observations outside the PF-EF cluster with its effect on the decrease in political freedom within the PF-EF cluster. The results are less persuasive but are slightly supportive of what we are saying. First, in the full sample both the increase and the decrease in political freedom probability are reduced by higher economic freedom (and lower political freedom) as shown in column 2, 3, 6 and 7 of Table 6a and 6b. As it is shown in column 4 and 5, the increase in political freedom probability is not reduced by higher economic freedom at a ten-percent significance level even if the level of political freedom is controlled for as in column 5. When it comes to the decrease in political freedom probability within the PF-EF cluster, on the other hand, the effect is negative and significant at the ten percent level (column 9). In addition the magnitude of this effect is larger in absolute value

than what we saw in column 5 in Table 6b.

Table 6a: Probit regressions on the decrease and increase in political or civil rights within less and more open countries

	dependent variable: probability of							
	an increase in political rights or civil liberties in a five year interval				a decrease in political rights or civil liberties in a five year interval			
	total sample		PF-NEF, NPF-EF, and NPF-NEF clusters		total sample		PF-EF cluster	
constant	1.889 (7.83)***	0.395 (1.20)	0.729 (2.45)***	0.317 (0.89)	1.688 (7.03)***	0.921 (2.70)***	0.443 (0.42)	-0.013 (-0.01)
economic freedom	-0.323 (-8.21)***	-0.175 (-3.91)***	-0.083 (-1.54)	-0.067 (-1.22)	0.324 (-8.17)***	-0.248 (-5.32)***	-0.208 (-1.40)	-0.257 (-1.88)*
political freedom		0.181 (6.29)***		0.076 (2.08)**		0.092 (3.23)***		0.555 (3.52)***
pseudo r2	0.067	0.103	0.003	0.010	0.068	0.077	0.010	0.062
number of obs.	813	813	536	536	813	813	277	277

Table 6b: Probit regressions on the decrease and increase in political or civil rights within less and more open countries, marginal effects at the means

	dependent variable: probability of							
	an increase in political rights or civil liberties in a five year interval				a decrease in political rights or civil liberties in a five year interval			
	total sample		PF-NEF, NPF-EF, and NPF-NEF clusters		total sample		PF-EF cluster	
economic freedom	0.128 (-8.20)***	-0.069 (-3.91)***	-0.032 (-1.54)	-0.026 (-1.22)	-0.125 (-8.17)***	-0.096 (-5.33)***	-0.048 (-1.40)	-0.057 (-1.89)*
political freedom		0.072 (6.28)***		0.029 (2.08)***		0.036 (3.22)***		0.122 (3.47)***
number of obs.	813	813	536	536	813	813	277	277

4.2.3. Using the measure of the doorstep conditions to identify open access orders

One obvious shortcoming of the above analysis is that we used the same data to identify open access orders as those we used to check our predictions concerning the relationship between economic and political freedom. For the results to be more persuasive we need an alternative source of data to identify different kinds of social orders. A possibility is the data from Gollwitzer and Quintyn (2012) who make the first attempt to test the theory of North et al. (2009). They create three different measures to have a quantitative evaluation of the three doorstep conditions (see footnote 9) and conclude that the theory's predictions are basically right.²⁹

One problem is that their index of the first doorstep condition includes some components of the EFW index (e.g., impartiality of the courts, integrity of the legal system) but this seems to be a minor problem. There is a more important conceptual difficulty that makes the use of the Gollwitzer and Quintyn (2012) data less obvious for us, which is the continuous as opposed to the discrete nature of the doorstep conditions. Gollwitzer and Quintyn's (2012) data reflect a continuous understanding of the conditions. That is, they suggest that there is a scale

²⁹ Their main concern is how the doorstep conditions are interrelated with different political and economic outcomes which they measure by the level of democracy, GDP per capita and income inequality.

between orders that are purely open access and that which are of a purely limited access kind. Our interpretation in the spirit of North et al. (2009), however, suggests a discrete understanding. As a consequence of this conceptual difficulty we cannot expect a perfect corroboration of our hypotheses when using the Gollwitzer and Quintyn (2012) data. What we can expect is that those hypotheses that we claim to hold among open access orders will be more articulate characteristics of those countries that are open access orders to a larger extent as measured by Gollwitzer and Quintyn (2012).

The most important prediction we can make is that a higher level of economic freedom will have a larger effect on the probability of a decrease in political freedom among those countries that are “more open” (in terms of Gollwitzer and Quintyn 2012) than the effect it has on the probability of an increase in political freedom among “less open” countries.

In the following we will split the Gollwitzer and Quintyn (2012) sample into two so that we can be able to check the above. We will split their sample into two halves, to a “less open” sample for the countries in which the overall index (D_overall) is lower than the median value (0.97) and to a “more open” one consisting of those for which the overall index is higher than, or equal to, the median. As a result, our “more open” sample consists of 55 countries while the “less open” one consists of 53.

As Table 7a and 7b show, the prediction cannot be rejected in the sense that there seems to be no statistically significant relationship between the change in political freedom and the level of economic freedom within “less open” countries (column 6 and 7) while the relationship is statistically significant in the “more open” sample with a direction as could be expected: more economic freedom reduces the probability of a change in political or civil freedom (column 4 and 5). In addition, the results in Table 7b shows that the magnitude of the effect of the economic freedom on the probability in question is larger than in the total sample (column 4 and 5 as opposed to column 2 and 3 in Table 7b).

Table 7a: Probit regressions on the change in political or civil rights within less and more open countries

	probability of a change in political rights or civil liberties in five year interval					
	total Gollwitzer and Quintyn (2012) sample		“more open” countries (D_overall>=0.97)		“less open” countries (D_overall<0.97)	
constant	3.104 (9.69)***	1.776 (4.44)***	3.836 (-7.54)***	2.020 (3.80)***	1.301 (4.65)***	1.854 (2.85)***
economic freedom	-0.445 (-8.82)***	-0.311 (-5.74)***	-0.568 (-7.54)***	-0.402 (-5.44)***	-0.093 (-1.10)	-0.124 (1.39)
political freedom		0.155 (4.35)***		0.318 (4.44)***		-0.083 (-1.26)
pseudo r2	0.119	0.145	0.156	0.237	0.270	0.255
number of obs.	664	664	358	358	306	306

Table 7b: Probit regressions on the change in political or civil rights within less and more open countries, marginal effects at the means

	probability of a change in political rights or civil liberties in five year interval					
	total Gollwitzer and Quintyn (2012) sample		“more open” countries (D_overall>=0.97)		“less open” countries (D_overall<0.97)	
economic freedom	-0.161 (-9.12)***	-0.112 (-5.81)***	-0.225 (-7.60)***	-0.159 (-5.49)***	-0.027 (-1.10)	-0.036 (-1.40)
political freedom		0.056 (4.43)***		0.126 (4.53)***		-0.024 (-1.27)
number of obs.	664	664	358	358	306	306

Since choosing the median value of the overall doorstep measure to separate open access orders from limited access ones is necessarily arbitrary we tried another threshold. This is

based on the suggestion of North et al. (2009) saying that there are roughly two dozen countries that can be described as open access orders. Ranking the countries according to the overall doorstep condition does, however, not show a great difference between the countries ranked 24th and 25th (1.24 as opposed to 1.23). There is a slightly larger change (0.05 index points) after the 30th country (Taiwan). In Table 8a and 8b we re-estimated the coefficients of Table 7a and 7b by using the index value of Taiwan (1.21) as a threshold instead of the median.

In this case higher economic freedom does reduce the probability of the change in political rights or civil liberties at a 5 percent significance level even within the “less open” countries, but this effect is still definitely smaller (column 2 and 3 versus column 4 and 5 in Table 8b).

Table 8a: Probit regressions on the change in political or civil rights within less and more open countries with the “two dozen” rule

	probability of a change in political rights or civil liberties in five year interval			
	“more open” countries (D_overall>=1.21)		“less open” countries (D_overall<1.21)	
constant	4.536 (-5.62)***	1.433 (1.15)	1.413 (3.97)***	1.804 (3.91)***
economic freedom	-0.717 (-6.14)***	-0.430 (-3.19)***	-0.106 (-1.71)*	-0.129 (2.01)**
political freedom		0.756 (1.78)*		-0.061 (-1.29)
pseudo r2	0.161	0.286	0.270	0.255
number of observations	209	209	455	306

Table 8b: Probit regressions on the change in political or civil rights within less and more open countries with the “two dozen” rule, marginal effects at the means

	probability of a change in political rights or civil liberties in five year interval			
	“more open” countries (D_overall>=1.21)		“less open” countries (D_overall<1.21)	
economic freedom	-0.258 (-6.11)***	-0.161 (-3.31)***	-0.030 (-1.71)*	-0.129 (-2.01)**
political freedom		0.283 (1.64)		-0.061 (-1.29)
number of observations	209	209	455	306

To make a step further, Table 9a and 9b compares the effect of economic and political freedom on the decrease in political or civil liberties for “more open” countries with the effects of the same variable on the increase in political or civil freedom in “less open ones”. What we expect from these regressions is that the coefficient of economic freedom should be larger in absolute value when the regression is run with the probability of a decrease in political freedom within the “more open” group compared to the coefficient of economic freedom when the regression is run on the “less open” sample with the probability of an increase in political freedom as a dependent variable.

The results in Table 9a and 9b confirm our predictions. As can be seen in columns 2-3 and 6-7 on the full Gollwitzer and Quityn (2012) sample the probability of an increase in political freedom as well as that of a decrease is reduced by higher economic freedom. However, on the “less open” sample higher level of economic freedom does not affect the probability of an increase in political freedom (column 5) or the effect is only significant at a 10 percent level (column 4) and the effect is smaller than the effect on the probability of an increase of political freedom within the “more open” countries which can be seen by comparing column 4 and column 8 in Table 9b or comparing column 5 and 9.

Table 9a: Probit regressions on the decrease and increase in political or civil rights within less and more open countries

	dependent variable: probability of							
	an increase in political rights or civil liberties in a five year interval				a decrease in political rights or civil liberties in a five year interval			
	total Gollwitzer and Quintyn (2012) sample		“less open” countries (D_overall<0.97)		total Gollwitzer and Quintyn (2012) sample		“more open” countries (D_overall>=0.97)	
constant	2.046 (7.66)***	0.771 (2.09)**	0.936 (2.28)***	0.182 (0.34)	1.878 (7.19)***	1.369 (3.62)***	1.443 (3.53)***	0.539 (1.04)
economic freedom	0.344 (-7.92)***	-0.220 (-4.43)***	-0.134 (-1.79)*	0.093 (-1.19)	-0.353 (-8.21)***	-0.303 (-5.93)***	-0.315 (-5.03)***	-0.232 (-3.31)***
political freedom		0.154 (4.83)***		0.115 (2.11)**		0.061 (1.92)*		0.145 (2.94)***
pseudo r2	0.074	0.100	0.008	0.025	0.078	0.082	0.061	0.083
number of obs.	664	664	306	306	664	664	358	358

Table 9b: Probit regressions on the decrease and increase in political or civil rights within less and more open countries, marginal effects at the means

	dependent variable: probability of							
	an increase in political rights or civil liberties in a five year interval				a decrease in political rights or civil liberties in a five year interval			
	total Gollwitzer and Quintyn (2012) sample		“less open” countries (D_overall<0.97)		total Gollwitzer and Quintyn (2012) sample		“more open” countries (D_overall>=0.97)	
economic freedom	-0.344 (-7.92)***	-0.088 (-4.43)***	-0.052 (-1.79)*	-0.036 (-1.19)	-0.137 (-8.18)***	-0.118 (5.93)***	-0.104 (-5.01)***	-0.075 (-3.29)***
political freedom		0.061 (4.83)***		0.045 (2.11)**		0.024 (1.91)*		0.047 (2.91)***
number of obs.	664	664	306	306	664	664	358	358

The analysis of Table 9a and 9b is repeated with the stricter threshold, too, in Table 10a and 10b. These results do not mirror those differences we could detect above. As the results in Table 10b show, the marginal effects are roughly the same. For example, the results in column 3 of Table 10b the prediction is that a one-point increase in economic freedom will reduce the probability of an increase in political freedom or civil liberties by 0.053 in “less open” countries which is just as large as the effect of the same on the decrease in political freedom within the “more open” countries.

Table 10a: Probit regressions on the decrease and increase in political or civil rights within less and more open countries with the “two dozen” rule

	dependent variable: probability of			
	an increase in political rights or civil liberties in a five year interval in “less open” countries (D_overall<1.21)		a decrease in political rights or civil liberties in a five year interval in “more open” countries (D_overall>=1.21)	
constant	1.094 (3.46)***	0.686 (1.72)	1.186 (1.52)	0.511 (0.48)
economic freedom	-0.158 (-2.84)***	-0.135 (-2.36)**	-0.341 (-3.00)***	-0.268 (-1.91)*
political freedom		0.066 (1.64)		0.101 (2.94)
pseudo r2	0.013	0.018	0.052	0.059
number of observations	455	455	209	209

Table 10b: Probit regressions on the decrease and increase in political or civil rights within less and more open countries with the “two dozen” rule, marginal effects at the means

	dependent variable: probability of			
	an increase in political rights or civil liberties in a five year interval in “less open” countries (D_overall<1.21)		a decrease in political rights or civil liberties in a five year interval in “more open” countries (D_overall>=1.21)	
economic freedom	-0.062 (-2.84)***	-0.053 (-2.36)**	-0.067 (-2.96)***	-0.053 (-1.90)*
political freedom		0.026 (1.64)		0.020 (1.02)
number of observations	455	455	209	209

5. CONCLUSIONS

In this paper we used the theoretical framework developed by North et al. (2009) to interpret and investigate the HFH: since in this framework social orders are conceptualized as a result of the co-evolution of economic, political and legal institutions, it also gives theoretical underpinnings to the economic freedom–political freedom relationship. The theory of North et al. (2009) allowed us to interpret the HFH in a different way from other interpretations prevalent in the literature on empirical investigations of the HFH. One aspect of our weak interpretation of the HFH is that the HFH is relevant only for the open access order; the other is that economic freedom is a necessary condition for *maintaining* political freedom in this order; that is, once achieved, political freedom needs economic freedom to be stable. Our empirical investigations, based on the one hand, on cluster analyses together with survival probabilities, and on the other, on probit regressions provided support for the weak interpretation of the HFH.

So in this paper we argued the HFH holds *per definitionem* for open access orders in its *weak* form, an assertion which does not say much about the way economic and political freedom evolved into a level we experience today; it rather concerns the problem of how to preserve political freedom once we have achieved it. When this argument is confronted with historical facts, our hypothesis would be that once western countries had become open access orders, they needed economic freedom to maintain political freedom.

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Appendix

Table A1: Composition of the cluster PF-NEF

Albania	2000	Guinea-Bissau	1995, 2005	Papua New Guinea	1985-2005
Argentina	1970, 1980-1990, 2005	Guyana	1995, 2005	Paraguay	1990, 2000-2005
Bangladesh	1990-1995	Honduras	1980-2000	Peru	1980-1985
Belize	1985	Hungary	1990	Philippines	1985-1990
Benin	1990-2005	Iceland	1975-1980	Poland	1990-1995
Bolivia	1980-1995, 2005	India	1970-2005	Portugal	1975-1985
Botswana	1980-1990	Indonesia	2005	Romania	1995-2000
Brazil	1980-2005	Israel	1970-1995	Russia	1995
Bulgaria	1990-2000	Italy	1975-1980	Senegal	1980-1985, 2000-2005
Central African Republic	1995	Jamaica	1980-1995	Sierra Leone	2005
Colombia	1970-1990, 2005	Latvia	1995	Slovakia	1995
Costa Rica	1985	Lithuania	1995	Slovenia	1995
Croatia	2000	Madagascar	1990-2000	South Korea	1985-1990
Cyprus (Greek)	1975-1985	Malawi	1995-2000	Spain	1975
Czech Republic	1995	Malaysia	1970	Sri Lanka	1980-1985, 2000
Dominican Republic	1980-1995	Mali	1990-2005	Sweden	1975
Ecuador	1980-2005	Malta	1980-1990	Thailand	1985, 2000
El Salvador	1985-1990	Mauritius	1975-1985	Trinidad & Tobago	1975-1990
Estonia	1995	Mexico	1980-1985, 2000	Turkey	1970-1975, 1985-1990, 2005
Fiji	1975-1980, 1995	Namibia	1990-2000	Ukraine	1995-2005
Ghana	1995-2000	Nepal	1980-1995	Uruguay	1985
Greece	1975-1995	Nicaragua	1995-2000	Venezuela	1975, 1985-1995
Guatemala	1970, 1985	Niger	2005	Zambia	1990
		Panama	1990		

Table A2: Composition of the cluster NPF-EF

Albania	1995
Algeria	2005
Bahrain	1980-2005
Bangladesh	2000-2005
Brazil	1970-1975
Central African Republic	1990
Chile	1985
Colombia	1995, 2000
Congo, Republic of	1990
Cote d'Ivoire	1980-1990, 2000-2005
Croatia	1995
Ecuador	1975
Egypt	1985, 2000-2005
El Salvador	1980
Fiji	1985-1990, 2000-2005
Gabon	1990-2005
Greece	1970
Guatemala	1975-1980, 1990-2005
Haiti	1995-2005
Honduras	2005
Hong Kong	1995-2000

Hungary	1985
Indonesia	1975, 1985-2000
Iran	2005
Jordan	1985-2005
Kenya	1970, 2000-2005
Kuwait	1980-1985, 1995-2005
Madagascar	2005
Malawi	2005
Malaysia	1975-2005
Mexico	1970-1975, 1990-1995
Morocco	1970-1975, 1985-2005
Nepal	2000-2005
Nicaragua	2005
Niger	1990, 2000
Nigeria	2000-2005
Oman	1985-2005
Pakistan	1985-1995, 2005
Panama	1975-1985
Paraguay	1980, 1995
Peru	1995
Philippines	1970-1980, 2005

Portugal	1970
Russia	2005
Rwanda	2005
Senegal	1990-1995
Sierra Leone	1980, 2000
Singapore	1970-2005
South Africa	1970-1990
South Korea	1975-1980
Spain	1970
Sri Lanka	1990-1995, 2005
Taiwan	1970-1990
Tanzania	1995-2005
Thailand	1970-1980, 1990, 2005
Togo	2000, 2005
Tunisia	1990-2005
Turkey	1995-2000
Uganda	1995-2005
United Arab Emirates	1980-2005
Uruguay	1980
Venezuela	2000-2005
Zambia	1995-2005
Zimbabwe	1980, 1995

Table A3: Composition of the cluster NPF-NEF

Albania	1990		1990-1995		2000
Algeria	1980-2000	Gabon	1980-1985	Paraguay	1985
Argentina	1975	Ghana	1975-1990	Peru	1970-1975, 1990
Bangladesh	1975-1985	Guinea-Bissau	1990, 2000	Poland	1985
Benin	1980-1985	Haiti	1980-1990	Romania	1985-1990
Bulgaria	1985	Hungary	1980	Russia	2000
Burma	1980-2005	Indonesia	1970, 1980	Rwanda	1990-2000
Burundi	1975-2005	Iran	1970-2000	Sierra Leone	1975, 1985-1995
Cameroon	1980-2005	Jordan	1975-1980	South Korea	1970
Central African Republic	1985, 2000-2005	Kenya	1970-1995	Syria	1970-2005
Chad	1985-2005	Kuwait	1990	Tanzania	1970-1990
Chile	1970-1980	Madagascar	1985	Togo	1980-1995
China	1980-2005	Malawi	1975-1990	Tunisia	1970-1985
Congo, Dem. Republic	1970-2005	Mali	1975-1985	Turkey	1980
Congo, Republic of	1980-1985, 1995-2005	Morocco	1980	Uganda	1980-1990
Cote d'Ivoire	1995	Nicaragua	1980-1990	Zambia	1975-1985
Ecuador	1970	Niger	1980-1985, 1995	Zimbabwe	1985-1990, 2000-2005
Egypt	1975-1980,	Nigeria	1970-1995		
		Pakistan	1970-1980,		

Table A4: Composition of the cluster PF-EF

Albania	2005	Ghana	2005	Philippines	1995-2000
Argentina	1995-2000	Greece	2000-2005	Poland	2000-2005
Australia	1970-2005	Guyana	2000	Portugal	1990-2005
Austria	1970-2005	Hong Kong	1975-1990, 2005	Romania	2005
Bahamas	1975-2005	Hungary	1995-2005	Slovakia	2000-2005
Barbados	1975-2005	Iceland	1970, 1985-2005	Slovenia	2000-2005
Belgium	1970-2005	Ireland	1970-2005	South Africa	1995-2005
Belize	1990-2005	Israel	2000, 2005	South Korea	1995-2005
Bolivia	2000	Italy	1970, 1985-2005	Spain	1980-2005
Botswana	1995-2005	Jamaica	2000-2005	Sweden	1970, 1980-2005
Bulgaria	2005	Japan	1970-2005	Switzerland	1970-2005
Canada	1970-2005	Latvia	2000, 2005	Taiwan	1995-2005
Chile	1990-2005	Lithuania	2000, 2005	Thailand	1995
Costa Rica	1975-1980, 1990-2005	Luxembourg	1970-2005	Trinidad & Tobago	1995-2005
Croatia	2005	Malta	1995-2005	United Kingdom	1970-2005
Cyprus (Greek)	1990-2005	Mauritius	1990-2005	United States	1970-2005
Czech Republic	2000-2005	Mexico	2005	Uruguay	1990-2005
Denmark	1970-2005	Namibia	2000, 2005	Venezuela	1970-1980
Dominican Republic	2000, 2005	Netherlands	1970-2005		
El Salvador	1995-2005	New Zealand	1970-2005		
Estonia	2000-2005	Norway	1970-2005		
Finland	1970-2005	Panama	1995-2005		
France	1970-2005	Peru	2000-2005		
Germany (West)	1970-2005				

Table A5: Development data on the four clusters

	PF-NEF	NPF-EF	NPF-NEF	PF-EF
Government	5.667	6.488	4.912	5.568
Area 2 index	4.824	5.281	3.811	7.688
Per capita GDP	6089.041	8082.600	2451.270	21120.400
Average years of primary education	4.231	3.766	2.834	5.592
Average years of education	6.149	5.666	3.949	9.189

“Government” (size of government) and “Area 2 index” are from Gwartney, Lawson and Hall (2011). Per capita GDP is calculated at 2005 prices in international dollars based on the chain-linked method by Heston, Summers and Aten (2012). Education data are from Barro and Lee (2010) and measure the education level of the population above the age of 15.

Revenues resulting from the operation of the funicular in Prague

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ABSTRACT

Funiculars are everywhere in the world of popular means of transport not only for the residents of the countries, but especially for tourists. In the Czech Republic several funiculars are in operation. The very popular and widely used funicular include Prague to Petrin Hill, which is operated by the Transport Company of Prague. The funicular to Petrin is a type of terrestrial rail funicular operated in the capital Prague. This article describes the funicular, especially regarding quantity of passengers transport and revenues resulting from the operation of funicular.

Keyword: Revenues, quantity of passengers, funicular

1. INTRODUCTION

The funicular to Petrin we can certainly include the cultural sights of Prague. Funicular connects the base station Ujezd with upper station Petrin (via central station Nebozizek). Generally we can say that performs two basic functions. The first is the provision of passenger transport between stations and the second is a function of tourist attractions, such as funiculars in Budapest and Paris.

Construction of the funicular was started in 1891. The first test ride on the funicular was held on 13 July 1891 and subsequently began regular passenger transport of 25 July 1891. Drive of the original funicular operated on the principle of weight of water. This system was replaced in the 30s of the 20th century electric drive, which is used today.

2. THE FUNICULAR TO PETRIN

The Petrin funicular is operated currently by the Transport Company of Prague. The funicular is part of the Prague Integrated Transport, which as a modern public transport system further includes the metro, urban and suburban buses, trams, trains and ferries.



Picture 1: The funicular to Petrin. Source: <http://www.dpp.cz>

Technical Administration of Roads of Prague - Department of Transportation Engineering publishes every year the annual transport. This document contained all data related to the Prague Integrated Transport, including the funicular to Petrin. The document, inter alia, that the funicular transports regularly each years nearly 2 million people. The document can also read the share of passengers funicular to the total number across the Prague Integrated Transport or revenues from passenger fares across the Prague Integrated Transport.

Year	Quantity of passengers	The share of passengers in the total number of Prague Integrated Transport	Revenues from fares across the Prague Integrated Transport	Revenues from fares in the funicular - calculation
2011	1,84 mil.CZK 1,77 mil.	0,16%	4 533 mil. CZK	7,25 mil. CZK
2010	CZK 1,80 mil.	0,14%	4 461 mil. CZK	6,25 mil. CZK
2009	CZK	0,14%	4 398 mil. CZK	6,16 mil. CZK

Table 1: Quantity of passengers and revenues of funicular

In theory we can consider that the percentage of passengers funicular to the total number of passengers carried across the Prague Integrated Transport corresponds to the same percentage of ticket revenues from the funicular to the total revenues across the Prague Integrated Transport. In reality, this relationship is not entirely accurate, because the funicular is used mainly by tourists and they will usually buy season tickets and not discounted coupons. This argument can be made to substantiate the survey, which on 24 May 2006 realized Transport Company of Prague. This is yet the latest survey conducted by the transport of this kind, where the objective was to determine the quantity of passengers carried on the funicular Ujezd - Petrin including structure of passengers and used tickets. The survey, inter alia, that 82% of quantity passengers (of the total number) were tourists and that 64,5% of quantity passengers (of the total number) used one-way ticket..

Nowadays (since the last adjustment of prices of public transport in Prague on July 1

2011) applies to the funicular to Petřín regular season tickets and coupons, the basic fare is 32 CZK for funicular but suffice short 30-minute ticket for 24 CZK. The funicular is also possible using the SMS ticket (by mobile). It is interesting perhaps to mention that at the beginning of its operation in 1891 was one-way ticket up 12 dimes, one-way ticket down 6 and two-way ticket 15 dimes..

3. CONCLUSION

The funicular to Petřín is a cornerstone of the Prague Integrated Transport forms an essential part of its course. Each year it uses several hundred thousand people, both residents of Prague and tourists from all over the world. So let us wish conclusion funicular to Petřín many years of successful operation.

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Have manufacturing exports generated employment in Vietnam ?

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ABSTRACT

Export-oriented industrialization has been a key focus of the policy transition since the early 1990s in Vietnam from a centrally planned to a market-oriented economy. This paper examines the impact of export expansion on employment generation during the 2000s using an input-output framework. The findings show that manufacturing exports created about 7 million new jobs between 2000 and 2007 through direct effects on the manufacturing sector as well as through spillover effect across sectors in the overall economy. Within manufacturing, almost 70 per cent of total employment in 2007 was mainly attributed to export expansion. Finally, the results show that the export-oriented industrialization in Vietnam performed well until 2007.

Key words: Input-output framework, manufacturing exports and employment

1. INTRODUCTION

This paper examines the impact of manufacturing exports on employment growth in Vietnam in the context of export-oriented industrialization (EOI) since the early 1990s.³⁰ It does so by exploring the implications of the rapid expansion of manufacturing exports on employment generation. In this view, I attempt to address three main problems: the overall pattern of employment stimulated by exports; how many jobs have been created through manufacturing exports; and the role of export-oriented manufacturing in employment growth in Vietnam.

The key premise of export-oriented industrialization is based on the basic Heckscher-Ohlin (HO) trade model. This basic model has been extended in studies conducted by Krueger et al. (1981) and Krueger (1983) who incorporated natural resources in the model. In this extended analytic framework, the export pattern of a labour-surplus economy shifts from natural-resources-based goods to labour-intensive manufacturing goods during the early stage of economic development. This is because of the small capital stock as well as the lower productivity of labour at the outset of development. As capital accumulation increases, labour moves into a newly developed manufacturing industry. Hence, the extended model postulates that a labour-surplus economy should specialize in labour-intensive manufacturing for exports in order to fully exploit its labour abundance (Krueger, et

³⁰ The term “Manufacturing exports” refers to the broad definition by the International Standard Industrial Classification (ISIC), whereas the other “Manufactured exports” corresponds to the narrow one defined by the Standard International Classification (SITC).

al., 1981). The industrialization of Taiwan, South Korea and other Southeast Asian economies indicates that the adoption of an export-oriented strategy at the outset of development has fostered rapid jobs growth (Ranis, 1973). A policy shift toward export promotion has allowed these economies to exploit the comparative advantages of labour-intensive goods.³¹ Export expansion thus becomes a powerful contributing factor to employment growth (Fields, 1984; Kuo & Fei, 1985).

In addition, the crucial emphasis on manufacturing exports in a developing economy is grounded on the theoretical rationale underlying the development of a loosely linked, import-dependent manufacturing sector in a labour-abundant economy (Athukorala & Santosa, 1997; Riedel, 1975, 1976). This view supports the expansion of low value-added export industries at the formative stage of EOI even though this expansion is heavily dependent on imported intermediate inputs. Imports played a large role in the production of manufacturing exports when Taiwan became a successful economy with an export-oriented strategy (Riedel, 1975). However, this strategy became controversial when the World Bank and other advisors argued that current developing economies such as Vietnam should increase domestic value-added and move up the value-chain (Ketels et al., 2010; World Bank Group, 2010). This implies that industrialization should concentrate on upgrading manufacturing exports by increasing the proportion of domestic inputs and focusing on more high-value added products.

This paper contributes to the ongoing debate about industrialization strategy by examining the case of Vietnam. Although Vietnam entered the market-oriented economy in 1986, it continued its import-substitution strategy during the initial stages of this reform. However, there has been a policy shift away from import-substituting to export-oriented industrialization since the early 1990s, with an intensified emphasis on extensive trade and enterprise reform during the 2000s. Given the evolution of the reform process, Vietnam provides a valuable case study of the impact of export-oriented industrialization on employment growth.

The core empirical analysis of this paper is based on the Leontief inter-industry accounting framework that measures the impact of export orientation on employment growth. The advantage of the inter-industry input-output framework in this type of analysis is that it takes into account both direct and indirect (inter-sectoral) consequences for the overall economy. This allows us to depict the interdependence between sectors and between the economy and export expansion. In particular, an employment multiplier derived from input-output coefficients provides a valid instrument to measure the repercussions for jobs generated by manufacturing exports. In this way, the input-output framework is well fitted to capture the repercussions of export expansion on job creation.

This paper is structured as follows. The first section discusses a changing structure of manufacturing employment. The next section analyzes the importance of manufacturing exports. The following section examines the impact of manufacturing exports on employment growth using the input-output tables for Vietnam 2000 and

³¹ For useful discussions on this issue, see Akrasanee (1981), Balassa (1985), Cole and Westphal (1975), Fujita and James (1990), Hong (1981), Pitt (1981), Suphachalasai (1995), Watanabe (1972).

2007. The final section summarizes the findings and provides policy implication on an industrialization strategy.

2. MANUFACTURING EMPLOYMENT IN VIETNAM

The employment growth in a manufacturing sector has been notable following market-oriented policy reforms. The manufacturing sector covers all 21 manufacturing industries except the manufacture of refined petroleum and gas (VSIC 23) (due to the unavailability of data as well as possible distortions in price fluctuation from this industry). This growth has been underpinned by a changing composition of employment. Data on the growth and industry composition of manufacturing employment are presented in Table 1. Employment generation is mainly focused on the labour-intensive group and the resource-based, labour-intensive group. Within the former, garments, footwear and furniture are among the most labour-intensive and highly export-oriented industry. As with electronics, some of the component production and assembly industries such as office, accounting and computing machinery (VSIC 30), and radio and television equipment (VSIC 32) grew at a respectable rate (at 23 per cent and 15 per cent, respectively) from a very small base. Unlike other resource-based industries, the processed food industry has a high level of job creation, with its employment share comparable to that of the labour-intensive industries. Apart from these industries, the non-metallic mineral industry has generated a considerable number of jobs.

Table 6: Manufacturing employment in Vietnam: composition and growth, 2000-07
(in %)

	Composition			Growth rate ^b 2000-07
	2000	2003/04 ^a	2007	
(1) Labour-intensive ^c	50.5	53.9	56.5	
<i>Traditional labour-intensive</i>	46.3	49.9	51.0	
17: Manufacture of textiles	7.7	5.8	5.2	5.3
18: Manufacture of wearing apparel	14.5	17.2	18.7	13.2
19: Manufacture of leather products, including footwear	18.6	17.9	16.3	8.4
22: Publishing and printing	1.4	1.4	1.4	9.6
36: Manufacture of furniture, n.e.c	4.1	7.6	9.4	20.6
<i>Electronics</i>	4.1	4.0	5.4	
30: Office, accounting and computing machinery	0.2	0.2	0.5	23.3
31: Electrical machinery and apparatus	2.5	2.3	2.9	12.1
32: Radio, television and communication equipment	1.0	1.0	1.6	15.0
33: Medical, precision and optical instruments	0.4	0.4	0.4	10.5
(2) Resource-based, labour-intensive	21.5	18.4	16.0	
15: Food products and beverages	16.8	14.2	12.3	6.3
16: Manufacture and tobacco products	0.8	0.5	0.4	1.4
20: Manufacture of wood and wood products	4.0	3.8	3.3	7.8
(3) Resource-based, capital-intensive	19.4	17.7	17.3	
21: Paper and paper products	2.3	2.1	2.1	8.9
24: Chemical and chemical products	4.1	3.0	3.5	8.0

25: Rubber and plastic products	3.2	3.7	4.0	12.6
26: Manufacture of non-metallic mineral products	8.0	7.5	6.4	7.4
27: Manufacture of basic metals	1.8	1.4	1.4	7.0
(4) Capital-intensive	8.6	9.9	10.9	
28: Fabricated metal products	3.2	4.0	4.7	14.8
29: Machinery and equipment	1.9	1.9	1.7	8.4
34: Motor vehicles, trailers and semi trailers	1.0	1.2	1.2	12.4
35: Manufacture of other transport means	2.5	2.8	3.3	13.5
Whole manufacturing	100.0	100.0	100.0	10.0

Notes: (a) Two-year averages.

(b) Average annual growth rate over the period 2000-2007.

(c) Defined as follows: (1) Labour-intensive: Traditional - VSIC 17,18,19, 22 & 36 and Electronics (VSIC 30-33); (2) Resource-based, labour-intensive - VSIC 15,16 & 20; (3) Resource-based, capital-intensive - VSIC 21,24,25,26 & 27 and (4) Capital-intensive – VSIC 28,29,34 & 35.

Source: Based on data compiled from GSO, Statistical Yearbook (various issues).

Two notable relations between outputs, exports and employment emerge. First, the labour-intensive group that only accounted for 28 per cent of the total output generated above a half of the total number of manufacturing workers during the period 2000-07. As with the resource-based, labour-intensive group, the share of the processed food industry in the total employment declined slightly but still remained significant, reflecting its output contraction over this period. In addition, the two remaining groups had a modest employment share. Some of these industries, which occupied minor shares in production [notably basic metals (VSIC 27) and machinery and equipment (VSIC 29)] recruited very little labour. Coupled with this output composition, employment growth is strongly associated with export expansion in industries having a comparative advantage. These labour-intensive sub-industries (SITC 8), to which we will return later (namely apparel, footwear and furniture), figured prominently in export performance, their combined shares accounting for 45 per cent of the total employment in 2007. In the 1950s and 1960s when the present-day industrialized economies in East Asia began their economic development following export-led growth strategies, traditional labour-intensive manufacturing was the main growth area for jobs. From this relation, we can draw the hypothesis that this export expansion could translate into higher employment.

It is clear that the labour-intensive group together with resource-based, labour-intensive one has contributed to 70 per cent in the total manufacturing employment over this period.³² This would stimulate a shift in labour away from agriculture into manufacturing. My proposition, derived from the experience of East Asian labour-abundant economies, is that employment growth in Vietnam can be closely associated with the expansion of manufacturing exports.

3. EXPORT PATTERNS

Table 2 summarizes the data on export performance by major merchandise group over

³² Own calculations based on data compiled from GSO, Statistical Yearbook (various issues).

the period 1990-2009. Exports of oil and gas contributed around 20 to 25 per cent to overall export growth during the 1990s, with changes influenced mainly by fluctuations in world oil prices. During this time, the growth rate of oil and gas exports decreased to an average annual rate of around 7.5 per cent in the first decade of the 2000s. Meanwhile, the average growth rate of non-oil exports from Vietnam was nearly 19 per cent per annum; this growth contributed to about 90 per cent of the overall export growth over the same period. Furthermore, manufactured exports grew at an average annual growth rate of 30 per cent during the period 1990-2009.

Table 7: Vietnam's export growth, 1990-2009 (in %)

(a) Growth rates (% p.a)	1990-94	1995-99	2000-09	1990-09
Oil and gas	16.6	21.7	7.5	15.5
Non-oil exports ^a	13.3	20.4	18.6	18.7
<i>Agriculture</i>	17.8	8.1	15.2	14.1
<i>Manufactured exports^b</i>	53.8	32.4	20.7	30.8
Total exports	14.0	20.6	16.5	18.1
(b) Contribution to incremental in export growth (%)				
Oil and gas	24.1	20.3	8.1	12.3
Non-oil	75.9	79.7	91.9	87.7
<i>Agriculture</i>	37.0	10.7	13.5	13.4
<i>Manufactured exports</i>	57.1	60.8	64.3	61.0
Total exports	100	100	100	100

Notes: (a) Non-oil exports: total exports less oil and gas exports (SITC 33, SITC 34)

(b) Manufactured exports: SITC 5 to 8 less SITC 68 (non-ferrous metal).

Source: Based on data compiled from C.E.I.C. Asian database, 2012 and UN Comtrade database.

Since the early 1990s, there has been a marked shift in the composition of merchandise exports away from the primary products toward manufactured commodities (Table 3). The speed of this shift in Vietnam was modest compared to the changing composition of exports in Taiwan and South Korea at their early stages of development over the period 1960-1970 (Balassa, 1985, p.146; Kuo & Fei, 1985, p. 47). In the early years of the reform process, the share of manufactured exports in total exports was only below 30 per cent (about 0.7 current US\$ billion) in 1990. Since then this share rose to over 58 per cent (above 33 current US\$ billion) in 2009. However, primary products, including a major proportion of agricultural and mineral products, still play a significant role in total exports. It is of interest that processed food³³ recorded a remarkable share (above 10 per cent) of total exports from 1995.

³³ See note b in Table 3.

Table 8: SITC composition of exports, Vietnam, 1990-2009

SITC composition	1990	1995	2000	2009
Export value (US\$ million at current prices)				
Total exports	2,404.0	5,449.0	14,482.7	57,096.3
Primary products (0-4) ^a	1,680.9	3,664.1	7,841.8	22,326.3
<i>Processed food</i> ^b	--	944.4 ^c	1,811.9	5,132.1
Manufactured exports ^d	700.9	1,798.6	6,170.9	33,578.9
<i>Chemicals</i> (5)	17.6	30.9	138.5	1,266.5
<i>Resource-based manufactures</i> (6)	107.5	349.8	757.5	5,023.0
<i>Machinery and transport equipment</i> (7)	1.1	89.4	1,252.9	7,398.8
<i>Miscellaneous</i> (8)	574.7	1,314.7	4,021.9	19,890.6
Unclassified	22.3	0.0	470.1	1,191.1
Percentage of total exports (%)				
Primary products (0-4)	69.9	67.2	54.1	39.1
<i>Processed food</i>	--	10.3	12.5	9.0
Manufactured exports	29.2	33.0	42.6	58.8
<i>Chemicals</i> (5)	0.7	0.6	1.0	2.2
<i>Resource-based manufactures</i> (6)	4.5	6.4	5.2	8.8
<i>Machinery and transport equipment</i> (7)	0.0	1.6	8.7	13.0
<i>Miscellaneous</i> (8)	23.9	24.1	27.8	34.8
Unclassified	0.9	0.0	3.2	2.1

Notes: (a) Numbers in the bracket denote corresponding sections in the SITC classification

(b) Processed food products were defined using a commodity concordance linking Standard International Trade Classification (SITC) and International Standards Industrial Classification (ISIC) in Athukorala and Sen (1998). All five-digit items in SITC sections 0: food and live animals; 1: beverages and tobacco and 4: vegetable oils are treated as processed food. The comparable sections in the ISIC are industry groups 15-16.

(c) Data of the processed food in 1997.

(d) SITC 5 to 8 less SITC 68 (non-ferrous metals).

Source: Based on data compiled and calculated from C.E.I.C. Asian database, 2012 and UN Comtrade database

Processed food has accounted for a significant proportion of exports in developing countries such as Vietnam. The export pattern from typical East Asian economies during the early stage of industrialization is particularly impressive for not only its superior growth in manufactured exports but also for remarkable gains in the processed food category (Athukorala & Sen, 1998). In a country that is endowed with significant agricultural and marine resources such as Vietnam, an impetus for export expansion can originate from the increase in production of processed foods such as fish preparations, coffee extracts and processed fruits. However, this group was concealed under the primary product sections (SITC 0-4) of the SITC nomenclature.³⁴ Therefore, incorporating the processed food category is necessary in order to capture the performance of manufacturing exports.

³⁴ Processed food commodities are placed in the following sections of SITC 0: food and live animals, 1: beverages and tobacco, and 4: vegetable oils.

Table 9: Manufacturing exports: Composition and growth in Vietnam, 2000-2007 (in %)

		Composition			Growth ^a	Contribution ^b
		2000	03/04 ^c	2007		
	Processed foods	22.7	18.3	14.3	13.6	11.4
03	Processed fish products	18.5	15.5	12.2	14.3	10.0
5	Chemicals and related products, n.e.s.	1.7	2.5	3.3	33.2	3.9
6	Resource-based manufactures	9.5	10.5	12.4	26.0	13.4
61	Leather, leather goods	0.1	0.2	0.4	46.0	0.5
63	Wood products	1.2	0.7	0.6	9.4	0.4
65	Textiles	3.7	3.7	4.3	23.7	4.5
7	Machinery and transport equipment	15.7	14.3	18.2	23.9	19.0
71	Power generating machines	0.7	0.8	1.4	35.3	1.7
72	Specialized industrial machine	0.8	0.6	0.5	14.4	0.4
73	Metal working machines	0.0	0.0	0.1	89.9	0.1
74	General industrial machinery	0.2	0.5	1.0	47.6	1.2
	ICT products	10.1	6.9	8.4	18.1	7.8
75	Office machines	6.1	3.7	3.4	11.7	2.5
76	Telecom. and sound recording equipment	1.0	1.4	2.1	34.6	2.5
772+776	Semiconductors/semiconductor devices	3.0	1.8	2.9	20.7	2.9
77-772-776	Electrical good	2.7	3.4	4.4	30.6	5.1
77	Electrical machinery	5.7	5.2	7.3	25.9	7.9
78	Road vehicles	0.9	1.9	1.8	33.7	2.2
79	Other transport equipment	0.3	0.0	0.5	29.7	0.6
8	Miscellaneous manufacturing	50.4	54.4	51.8	21.8	52.4
81	Fabricated building fixtures/machines	0.1	0.2	0.3	51.8	0.3
82	Furniture and parts	2.9	5.4	7.7	39.3	9.3
84	Apparel and clothing accessories	22.8	25.9	24.0	22.2	24.4
85	Footwear	18.4	16.9	13.2	15.7	11.4
	VSIC manufacturing	100.0	100.0	100.0	21.3	100.0

Notes: (a) Average annual growth rate over the period 2000-2007.

(b) Contribution to manufacturing export growth over the period.

(c) Two-year average.

Source: Compiled from UN Comtrade database, 2012

Table 4 reveals three noteworthy features of compositional shifts in the manufacturing exports over the period 2000-07. First, the traditional labour-intensive manufacturing exports - especially clothing, furniture and footwear classified as miscellaneous manufacturing under Section 8 (See Table 3) - have grown the most rapidly over that period. This product group has accounted for over half of total manufacturing exports during the period 2000-07, and contributed to as much as half of the export increment. Within this group, there has been a notable changing distribution. The share of furniture in total manufacturing exports increased almost three-fold between 2000 and 2007. The proportion of footwear declined considerably, from 15 per cent to 11 per cent, between these two years while the export share of apparel increased slightly.

This may possibly reflect a shift toward a sub-sector with higher-skill commodities. This is because furniture is assumed to have greater value-added and skill intensity than apparel.

Secondly, the processed food sector has contributed to over 10 per cent of the total manufacturing export increment during the examined period. However, there has been a steady decline in its share either as manufacturing firms gradually move into other product areas or the balance of investment and output shifts in favour of these industries. Within this group, processed fish products figured prominently in terms of annual growth, and the share was almost above 80 percent over that period.

Finally, the share of component production and assembly in the electronics and electrical industries in total manufacturing exports has begun to increase rapidly since the early 2000s. This commodity category accounted for 19 per cent in the overall growth of manufacturing exports over the period 2000-07. To some extent, this trend is an early sign of Vietnamese manufacturing getting involved with a network of global production. Meanwhile, the growth of office machines (SITC 75), telecommunications and sound recording equipment (SITC 76) has been rather erratic and these products still account for a very small share of total manufacturing exports.

Manufacturing exports from Vietnam are characterized by a high degree of import intensity at the early stage of development as is the case of developing countries. Some policy makers have interpreted the high level of imported intermediate inputs in export-oriented industries to be an obstructing factor for employment generation. However, in an open economy, employing a large amount of imported capital-intensive intermediate inputs for export production implies a substitution of labour for capital in production. This would increase job growth through exports even though domestic linkages are getting lower (Athukorala & Santosa, 1997; Riedel, 1975).

Regarding the employment potential of resource-based industrialization, the common argument is that capital expenses and raw materials occupy a high proportion of production costs in resource-intensive industries (Roemer, 1979). However, unlike other resource-based industries, processed food requires many labour-intensive tasks in its final processing stages (Athukorala & Sen, 1998). Such export expansion enhances employment creation together with greater linkages with the rural sector in the economy. Two views support the hypothesis of a strong association between export expansion and employment growth in manufacturing.

It is evident that there is an association between export expansion and employment creation in Vietnamese manufacturing. How much of this employment growth can be attributed to a surge in manufacturing exports?

4. MANUFACTURING EXPORTS AND EMPLOYMENT

My hypothesis rests on the idea that expansion of manufacturing exports creates employment for an overall economy. This export growth can translate into higher employment not only in a manufacturing sector but also in other sectors through

inter-industry interaction within the economy. An input-output analysis is particularly relevant to an examination of this hypothesis since it represents closely linked connections across industries, providing a quantitative framework for measuring the consequences for job creation due to export expansion. Owing to the nature of data availability, this analysis focuses solely on the first decade of the 2000s during which time there has been a pronounced shift of unskilled labour into manufacturing.

Method

I follow the input-output framework to capture the employment implications of manufacturing exports, taking into account inter-sectoral input linkages for the whole economy. This methodology has been widely used in the related literature.³⁵

In an input-output framework of the complementary import type (Bulmer-Thomas, 1982), the import content of each transaction is separately identified and arranged into an import matrix. Thus, the following balance equation can be derived³⁶:

$$X = A^d X + F^d + E \quad , (1)$$

where X is the vector of total gross output, $A^d = [a_{ij}^d]$, $a_{ij}^d = X_{ij}/X_j$ is the domestic input-output coefficient matrix, and F^d and E are vectors of the domestic and export demand on domestically produced goods. Then, by assuming X is an endogenous variable, the following solution can be derived:

$$X = (I - A^d)^{-1} (F^d + E) \quad , (2)$$

where $(I - A^d)^{-1}$ is the Leontief domestic inverse matrix of the direct and indirect input requirements of good i in the production of one unit of the final demand for good j . The column-sums of the $(I - A^d)^{-1}$ matrix are the direct and indirect, domestically produced intermediate input requirements per unit of final demand for good j which is defined as backward linkages (BL). In other words,

$$BL_j = \sum_j^n \tilde{a}_{ij}^d \quad , (3)$$

where $\tilde{a}_{ij}^d$ is an element of the Leontief domestic inverse matrix. This index depicts the total demand for the intermediate input when domestic final demand or exports for the j^{th} commodity increases by one unit.

Next, to measure the employment implications of exports, I begin by defining a diagonal matrix of employment coefficients: $G = [g_i]$, $g_i = G_i/X_i$ (4) where G_i represents the number of workers employed in sector i . The empirical basis for the quantification of total employment in sectoral production can be obtained by $G(I - A^d)^{-1} = L$ (5) where L is the total employment requirement matrix of domestic production. An element of this matrix, l_{ij} , indicates the increase in employment in sector i resulting from a unit increase in final demand for sector j . Therefore, when there is a unit increase in domestic final demand or in exports for

³⁵ See Athukorala and Santosa (1997), Fujita and James (1997), and Kuo (1983)

³⁶ For a summary exposition see Thirlwall (2006: Paper 13)

sector j , the corresponding increase in total employment (l_{Tj}) is shown by $l_{Tj} = \sum_{i=1}^n l_{ij}$ ($j = 1, 2, \dots, n$). This expresses a measure of the employment multiplier when domestic final demand or exports for the j^{th} commodity increases by one unit.

Let e_j refer to the value of total exports from sector j . Assuming that the level of employment required to produce a unit of output is identical³⁷ whether the product is sold domestically or exported in sector j , the total employment induced by exports in sector j , which is denoted by l_{Tj}^e , can be estimated as $l_{Tj}^e = l_{Tj} \cdot e_j$ (6). The aggregate export-induced employment of the economy (L_T) is $L_T = \sum_j l_{Tj}^e$ (7).

Data

This analysis are based on the input-output tables for 2000 and 2007 and on employment data taken from the Statistical Yearbooks and the Enterprise Survey, all conducted by the GSO. Before proceeding with the analysis, two cautionary comments about the quality of data are in order.

First, the input-output tables are of the complementary import type in which a corresponding import matrix with estimates of imported intermediate input transactions was provided by the GSO. Then, in order to examine the inter-sectoral repercussions of exports in employment growth, the I-O tables are aggregated into 25 sectors based on the multi-sector classification of the original I-O tables by the GSO³⁸; this aggregation has mainly covered manufacturing sub-industries. Consequently, the result is reported in five major sectors: agriculture, mining and quarrying, manufacturing, construction and public utilities, and services. However, the I-O tables have their shortcomings. Estimates of imported intermediate inputs by GSO were grounded on the implicit assumption that the distribution of imported inputs across inputs was the same for all industries.

Table 10 : Employment data from the Enterprise Surveys, Vietnam 2000 and 2007

	Enterprise Survey (ES)*		Employment Data	
	Composition (%)		Proportion of ES in Statistical Yearbook (%)	
	2000	2007	2000	2007
Agriculture	7.6	3.4	1.1	1.0
Industry	66.5	70.0	52.9	60.3
Manufacturing	45.2	51.1	49.8	65.7
Services	25.9	26.5	12.7	16.0
All sectors	100	100	9.6	16.3

* The enterprise survey mainly covers all establishments with more than 10 employees, whereas the data included in the Statistical Yearbook presents all current business entities in the economy.

Source: Based on data compiled from GSO, Statistical Yearbook (various issues) and

³⁷ Normally, labour requirements in an industry's production for exports are of a higher skill level than in its production for the home market. This estimation procedure may lead to an underestimation of the value of labour employed in manufacturing exports.

³⁸ GSO provided a 112-sector classification in the I-O table in 2000 and 136-sector classification in 2007.

Enterprise Survey, 2000-07.

Second, no employment data from the particular manufacturing industries are available in the Statistical Yearbooks. Examining the linkages between exports and manufacturing employment requires exploring Enterprise Survey ³⁹ data. The data presented in Table 7 help us understand the nature of the Enterprise Survey. Overall employment in the economy taken from the Enterprise Survey composed only 10 per cent of the total employment described in the Statistical Yearbook in 2000 and increased to 16 per cent in 2007. A notable feature in the Enterprise Survey is that it covers a much higher proportion of the manufacturing sector than other sectors in the economy. It accounted for almost a half of total manufacturing employment in 2000 and around 66 per cent in 2007. For the purpose of this analysis, employment in these particular manufacturing industries has been extrapolated from the Enterprise Survey on the assumption that the manufacturing sector has the same employment structure as that estimated from the Enterprise Survey. However, extrapolating employment data to capture a picture of export-induced employment may give a distorted picture. It might lead to an overestimate of the employment effect due to the survey data covering a majority of large and medium-sized firms. Unfortunately there is no alternative. With these caveats, we do not have any a priori reason to doubt these assumptions on which these calculations are based.

Results

Table 6 illustrates how the structure of employment has been affected by manufacturing exports. The composition of employment created by manufacturing exports was quite similar between the two years. In 2000, about 64 per cent of the total employment generated by manufacturing exports was in the agriculture sector. This confirms a powerful linkage between the processed food industry and the rural economy. This is because this industry used most of its raw materials from agriculture in production for export. As could be expected, manufacturing employment was also strongly affected by the exports from this sector. Within the industrial sector, job-created effect of manufacturing exports on two other sub-industries (mining and construction) was almost negligible. The effect on the construction sector⁴⁰ runs counter to the normal expectation that links with manufacturing would be stronger in this sector. Furthermore, a modest proportion of jobs created by manufacturing exports were found in the services sector in 2000.

³⁹ The *Enterprise Survey* is an annual survey (first conducted in 2000), which covers all establishments with more than 10 workers and only takes a sample survey of establishments with less than 10 workers.

⁴⁰ The minor effect on the construction sector may be due to the poor data quality provided in the I-O table in 2000.

Table 11: Structure of employment created by manufacturing exports, Vietnam 2000 and 2007

Sectors	2000		2007	
	Number ('000)	Percentage (%)	Number ('000)	Percentage (%)
Agriculture	3,764	64.0	6,488	50.4
Mining and quarrying	6	0.1	47	0.4
<i>Manufacturing</i>	1,595	27.1	3,861	30.0
Construction and public utilities	30	0.5	834	6.5
Services	488	8.3	1634	12.7
All sectors	5,884	100	12,863	100

Source: Own calculations based on I-O tables, 2000 and 2007

Although most of the gains in employment created by manufacturing exports in 2007 still took place in agriculture, its share in total export-induced employment fell to a half. This partly reflects a shrinking share of the processed food category in total manufacturing exports. However, manufacturing exports were far more significant in creating employment in non-agricultural sectors. A sharp increase in export-related jobs was apparent in other sectors, in particular in construction⁴¹ and services, as well as in manufacturing. This demonstrates the remarkable structural change in employment patterns which resulted from the expansion of manufacturing exports, especially in those that involved more labour-intensive products.

The implications of manufacturing exports to employment creation are shown in Table 7. Total employment induced by manufacturing exports shows a more than two-fold increase, from 5.8 million in 2000 to 12.9 million in 2007. Manufacturing exports contributed to almost 30 per cent of total employment in 2007, up from about 16 per cent in 2000. This share is comparable to what occurred in Taiwan and South Korea during their early stages of industrialization (Kuo, 1983). As might be expected, manufacturing exports were the most significant source of manufacturing employment in Vietnam. In particular, within manufacturing the number of jobs created through exports increased from about 1.6 million in 2000 (about a half of total manufacturing employment) to 3.8 million (nearly 70 per cent of the total) in 2007.

⁴¹ Quality of data in the 2007 I-O table probably improved significantly from the previous table. Hence, it reflects the expected effect of manufactured exports on the construction sector.

Table 12: Contribution of manufacturing exports to jobs creation, Vietnam 2000 and 2007

Sectors	2000			2007		
	Total	Export-related		Total	Export-related	
		Number (‘000)	Percentage of all jobs (%)		Number (‘000)	Percentage of all jobs (%)
	(1)	(2)	(2)/(1)	(1’)	(2’)	(2’)/(1’)
Agriculture	25,045	3,764	15.0	24,368	6,488	26.6
Mining and quarrying	219	6	2.7	299	47	15.7
<i>Manufacturing</i>	3,208	1,595	49.7	5,741	3,861	67.2
Construction and public utilities	1,018	30	3.0	2,534	834	32.9
Services	7,212	488	6.8	12,266	1,634	13.3
All sectors	36,702	5,884	16.0	45,208	12,863	28.5

Source: Own calculations based on I-O tables, 2000 and 2007

What we have observed in Vietnam’s exports is that there has been a structural shift in favour of Vietnam’s comparative advantage in relatively labour-intensive manufacturing. As one would expect the average capital-labour ratio measured by VND million per worker has been lower in the export-oriented (EO) sector than in the import-competing (IC) sector. The basis for distinguishing between the EO and IC sectors in this analysis is mainly related to factor intensity rankings⁴² with special reference to export performance over the period of study. Each sector covers selected manufacturing industries due to the significance of data availability. Hence, the importance of manufacturing exports for employment justifies a closer examination of the change of employment generated by the expansion of manufacturing exports in the EO sector and the IC sector.

Table 8 examines employment generation among the EO and IC sectors. On the one hand, these data suggest that the job-creation impact of manufacturing exports in both the EO and the IC sectors has increased, though more so in the EO sector than the IC sector. The role of the EO sector in employment generation has worked well, since the number of jobs created through manufacturing exports doubled between 2000 and 2007. It would be considered reasonable, even promising, for EOI when as much as 18.6 per cent of export-created jobs could be attributed to the EO sector in 2000, the early point of extensive liberalization reform. On the other hand, while the export pattern has changed dramatically in favor of manufacturing, the structure of export-induced employment in manufacturing has not. There has not been much change in the distribution with regard to the EO sector, as its share in the total export-created employment only increased slightly to 19.5 per cent in 2007. Bearing in mind that manufacturing exports from Vietnam rose to as much as 20 per cent per annum over the period 2000-07, the employment share of the EO sector created through manufacturing exports only increased by a tiny figure - one percentage point

⁴² These ratios have been computed on the data compiled from the *Enterprise Survey* of 2000-09 at the 4-digit level of disaggregation.

between these years. Thus, there was not much improvement in the impact of the EO sector on employment generation during this period despite the intensified reforms of trade, investment and enterprise since the early 2000s. To sum up, labour-intensive exports worked well until 2007 even though the contribution of the EO sector on export-job creation has grown at a modest rate.

	Jobs created through manufacturing exports				Capital intensity*	
	2000		2007		2000	2007
Main export-oriented industry	Number (‘000)	Percentage %	Number (‘000)	Percentage %	Million dong per worker	
Food products and beverages	161.1	2.7	417.3	3.2	64.3	71.2
Manufacture of wearing apparel	391.7	6.7	738.9	5.7	15.4	12.1
Manufacture of leather products	463.1	7.9	842.3	6.5	17.4	16.4
Wood and wood products	66.3	1.1	162.8	1.3	14.5	25.9
Furniture	12.3	0.2	348.8	2.7	20.8	26.1
<i>Sub-sum (average) of above</i>	1,094.5	18.6	2,510.0	19.5	26.5	30.4
Typical import-competing industry						
Manufacture of textiles	160	2.7	155.0	1.2	52.9	76.9
Chemical and chemical products	29	0.5	90.2	0.7	57.9	63.4
Non-metallic mineral products	58	1.0	313.5	2.4	142.6	124.6
Manufacture of basic metals	51	0.9	293.8	2.3	60.8	158.4
<i>Sub-sum (average) of above</i>	298	5.1	852.4	6.6	78.6	105.8
Total export-induced employment	5,884	100	12,863.1	100.0		

Notes: * measured as fixed capital over worker - VND million per worker - which was compiled from Enterprise Survey, 2000-2007 GSO. The current values of fixed capital are deflated at the 1994 constant price using the deflator of fixed-capital formation from a national account.

Source: Own calculations based on I-O tables, 2000 and 2007

5. CONCLUSIONS

This paper has examined the impact of manufacturing exports on employment generation in the Vietnamese economy. It first focused on the employment manufacturing and the remarkable performance of manufacturing exports over the period 2000-07. This was followed by a core analysis using the inter-industry input-output framework to quantify the impact of export orientation on employment growth. The input-output analysis is relevant to the purpose of this study since this model provides an appropriate framework to evaluate both direct and indirect repercussions of export expansion on employment for the whole economy. The analysis drew upon the input-output tables of 2000 and 2007 by GSO.

The results consistently show the significance of EOI on employment generation in the Vietnamese economy over the past two decades. Export patterns have changed significantly, with a reduced position for primary products, a rising proportion of manufacturing exports, and a structural shift toward labour-intensive commodities within manufacturing. Perhaps the most impressive contribution of EOI has been the significant change in employment pattern over the 2000s. This shift has involved a movement of unskilled workers into the higher-productivity industrial sector, in particular manufacturing.

Manufacturing exports are found to have had a significant impact on employment growth in terms of both the overall economy and manufacturing. Between 2000 and 2007, about 7 million of new job opportunities were created through export expansion, as a result of direct effect on a manufacturing sector and spillover effects across sectors within the economy. In particular, above a half of the total jobs created by manufacturing exports was in the agriculture sector. Within manufacturing, almost 70 per cent of total employment in 2007 can be mainly attributed to export expansion.

The comparative analysis between the export-oriented industries and the import-competing ones brings more consistent results with higher export-induced jobs in the former industries than in the latter. The number of jobs caused by manufacturing exports increased a two-fold in the export-oriented industries between 2000 and 2007. In short, export-oriented industrialization, which is based on labour-intensive manufacturing for exports, performed well until 2007.

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Financial And Physical Performance of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in India

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ABSTRACT

One major, and indeed unique, programme for poverty alleviation through employment generation and asset creation and which has elicited world-wide attention, is the *Mahatma Gandhi National Rural Employment Guarantee Act* in India. It is based on the genius of using public works to play the role of a safety net by providing stabilization benefit to the rural poor who lack skills of any kind except perhaps possess physical stamina. It has enabled the deployment of poor labour and to build infrastructure for rural development. Its preponderant and immediate benefit every year, especially during times of distress due to droughts, is the effect of enabling the poor to handle the risk of decrease in consumption. The National Advisory Committee note that the cost of employment guarantee is anticipated to rise from 0.5 per cent of GDP in 2005-06 to 1 per cent of GDP in 2010-11. The United Nation rural poverty report, however notes some of India's exemplary rural poverty mitigation measures. Villages close to towns and cities have a better record of reducing poverty than others. Taking note of the landmark MGNREGA, it is noted that by 2010-11 the scheme provided 100 days employment to millions of poor rural households. Decreased out-migration has been recorded along with a rise in agricultural wages owing to better bargaining power for the agricultural labour in rural areas. The scope of the scheme is limited which needs to be widened. Animal husbandry, food processing, cottage, handicrafts, schooling, health care, child care, housing and sanitation etc. also need to be brought under the ambit of the scheme. To have a greater impact the ongoing rural development programmes should be integrated into the MGNREGA. 100 days offer of employment to a family in one financial year is in no way sufficient to sustain a family leave aside helping them cross the poverty line. The BPL families should be offered at least 200 days of work as against 100 days for others.

Keywords: India, MGNREGA, Rural, Employment, Guarantee.

1. INTRODUCTION

The government of India has initiated, sustained, and refined many programs since independence to help the rural poor. In order to minimize unemployment in rural areas, the government of India launched a number of programmes and schemes from time to time but they did not achieve the desired quantum and became ineffective. India has had a number of antipoverty programs since the early 1960s. These include the

'National Rural Employment Programme' and the *'Rural Landless Employment Guarantee Program'*. The National Rural Employment Programme evolved in 1980 from the earlier *'Food for Work Programme'* to use unemployed and underemployed workers to build productive community assets. The Rural Landless Employment Guarantee Programme was instituted in 1983 to address the plight of the hard-core rural poor by expanding employment opportunities and building the rural infrastructure as a means of encouraging rapid economic growth. To improve the effectiveness of the National Rural Employment Programme, in 1989 it was combined with the *'Rural Landless Employment Guarantee Programme'* and renamed it as *'Jawahar Rozgar Yojana'*. The Ministry of Rural Development has been implementing various programmes in the rural areas for which it releases central funds for policy formulation, overall guidance, monitoring and evaluation.

Objective of the Paper:

The present paper is prepared with the objective of to study the financial and physical progress of MGNREGA during the year 2006-07 to 2010-11

Research Methodology:

The paper is mainly based on secondary sources of data which is mainly collected from Reports of Ministry of Rural Development Government of India, research books, articles and various websites. The secondary data is more helpful to trace the progress of the MGNREGA; as field visits or primary data collection from districts or states was not possible in this study. The study period is considered from 2006-07 to 2010-11. Simple statistical tools have been used for data analysis and interpretation.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):

Recognizing the serious problem of unemployment, the *National Rural Employment Guarantee Act* (NREGA) was enacted on 7th Sept. 2005. Evolving the design of the wage employment programmes to fight rural poverty more effectively; the Central Government formulated the National Rural Employment Guarantee Act in 2005. From the year 2009-10 the NREGA was renamed as ***'Mahatma Gandhi National Rural Employment Guarantee Act'*** (MGNREGA), provides for the enhancement of livelihood security of the households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members to do unskilled manual work. The Act is also a significant vehicle for strengthening decentralization and deepening process of democracy by giving a pivotal role to the Panchayati Institutions.

MGNREGA makes the Government legally accountable for providing employment to those who ask for it and thereby goes beyond providing a social safety net towards guaranteeing the Right to Employment. A very significant feature of this Act is that if a worker who has applied for work under MGNREGA is not provided employment within 15 days from the date on which work is requested, an unemployment allowance shall be payable by the State Government at the rate prescribed in the Act. MGNREGA is a unique weapon to activate and empower the Panchayati institutions. It is a revolutionary step for India's rural poor. It aims to identity the development activities. It has prevented distress migration and helped in empowerment of rural women. Moreover it is an integral part of rural development plan.

Progress of MGNREGA During the year 2006-07 to 2010-11.

The MGNREGA is implemented in the country. The Act was notified in 200 districts in the first phase with effect from February 2nd 2006 and then extended to additional 130 districts in the financial year 2007-2008 (*113 districts were notified with effect from April 1st 2007, and 17 districts in UP were notified with effect from May 15th 2007*). The remaining districts have been notified under the MGNREGA with effect from April 1, 2008 covering 34 States and Union Territories, 614 Districts, 6,096 Blocks and 2.65 lakhs Gram Panchayats. Thus MGNREGA covers the entire country with the exception of districts that have a hundred percent urban population. The highest number of districts are from Uttar Pradesh (*71 districts*), followed by Madhya Pradesh (*50 districts*) Bihar (*38 Districts*), Maharashtra and Rajasthan (*33 Districts*). Each State government is expected to design a suitable employment guarantee scheme for the state, keeping in mind the MGNREGA and the Central Guidelines issued by the Government of India on the one hand and the specific needs of the State on the other hand.

Budget Allocation:

The pioneering programme saw its budget outlay increase from Rs. 11,300 crore to Rs. 40,100. The scheme experienced a negative increment in the budget allocation from Rs. 40,100 crore in 2010-11 to Rs. 40,000 crore in 2011-12. The following Table No. 01 shows the financial outlays of Government of India for MGNREGA from 2006-07 to 2011-12.

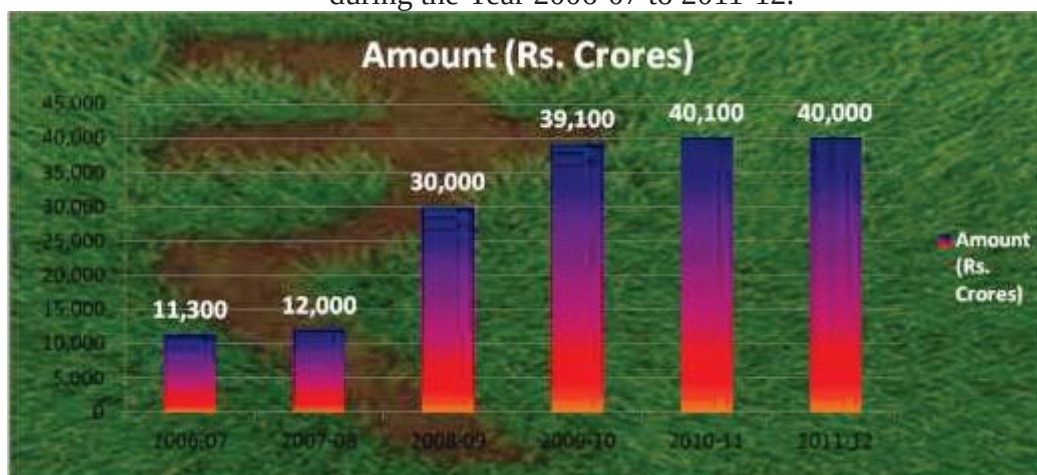
Table No. 01: Financial Outlay of Government of India for MGNREGA.
(2006-07 to 2011-12)

Sr. No.	Year	Amount (Rs. Crores)	% increased
1	2006-07	11,300	100.00
2	2007-08	12,000	106.19
3	2008-09	30,000	265.49
4	2009-10	39,100	346.02
5	2010-11	40,100	354.87
6	2011-12	40,000	353.98

Source: Annual Reports, Ministry of Rural Development, Government Of India.

Government of India provided funds to MGNREGA from the year 2006-07. In the year 2006-07 the Government provided Rs. 11,300 crore is continues increasing up to Rs. 40,000 crore in the year 2011-12. The 2010-11 Budget had provided 40,100 crore for MGNREGA, making it the highest allocation for any single social welfare scheme since independence. The increasing growth records 100 points to 355 points during the six years.

Graph No. 01: Financial Outlay of Government of India for MGNREGA during the Year 2006-07 to 2011-12.



Source: Table No. 01.

Job Cards:

The MGNREGA makes it mandatory for job-seekers to have a job card, for which the rural people have to apply to the panchayat (Village Center). The panchayat are required to provide applicants with job cards within 15 days. Having a Job Card is the first step to demand employment and claim wages or unemployment allowance if job is not provided within the stipulated time frame. Job Card is the most important instrument that can ensure that the workers are not being cheated on their entitlements.

Table No. 02: Cumulative No. of Households issued Job Cards Under MGNREGA during the year 2006-07 to 2010-11.

Sr. No.	Year	No. of Households Job-card Issued	% increase
1	2006-07	3,78,50,390	100.00
2	2007-08	6,47,40,595	171.04
3	2008-09	10,01,45,950	264.58
4	2009-10	11,25,50,610	297.35
5	2010-11	11,98,24,438	316.57

Source: <http://nrega.nic.in>.

Government of India issued job-cards to the households under MGNREGA. The cumulative figures of the job-cards issued by the government are presented in Table No. 02. In the year 2006-07 government issued 3.79 crore of job cards. After that the figures increased up to 11.98 crores in the year 2010-11. A percentage indeed shows the growth from 100 points to 316.57 points during the five years.

Graph No. 02:
Cumulative Number of Households issued Job Cards under MGNREGA.



Source: Table No. 02.

Demand For Employment:

One of the most important aspects of MGNREGA is that the villagers can rightfully demand employment. The Act guarantees provision of at least 100 days of employment to each household that demands work and is willing to do manual labour. The percentage of households that have been provided with 100 days of employment is an important indicator for assessing the progress of MGNREGA. The Government is bound to provide employment in response to the demand or provide unemployment allowance in case it is unable to do so. In order to understand the effectiveness of the Act, it is essential to look at the response of the Government in providing employment against the demand raised by the workers. From the data available, the national scenario reveals that, 99 per cent people who have applied for jobs have got employment under MGNREGA. The following Table No. 04 shows the progress of household demands and employment provided under the MGNREGA.

Table No. 03:
No. of Households demanded and provided employment under MGNREGA

Sr. No.	Year	No. of Households Demanded Employment	No. of Households Provided Employment	Target Achievement (%)
1	2006-07	2,11,88,894	2,10,16,099	99.18
2	2007-08	3,43,26,563	3,39,09,132	98.78
3	2008-09	4,55,18,907	4,51,15,358	99.11
4	2009-10	5,28,64,607	5,25,30,453	99.37
5	2010-11	5,57,63,244	5,49,54,225	98.55

Source: <http://nrega.nic.in>.

It is concluded from the table that; in the year 2006-07 the 2.12 crore households demanded for employment while 2.10 crores households provided employment. During the year 2009-10 the performance of the scheme in demand and supply was recorded 99.37 per cent achievements. The table also shows the target achievement with comparing to number of households demanded for employment. It shows that the average target achievement was seen at 99 per cent during the period.

Employment Generation:

Of the total person days generated, women constitute more than 40 per cent. The scheduled caste families have been provided with 30 per cent and the scheduled tribe families with 20 per cent person days of work. The following Table No. 04 shows the data about employment generation (man-days) under the MGNREGA.

Table No. 04: Category wise Employment Generation (Man-days) Under MGNREGA
(Figures in Lakh)

Sr. No.	Year	S.C.	S.T.	Others	Total	Women
1	2006-07	2,295.23	3298.33	3,456.59	9,050.54	3,679.01 (40.63)
2	2007-08	3,942.34	4,205.60	6,219.98	14,367.95	6,109.10 (42.52)
3	2008-09	6,336.18	5,501.64	9,795.06	21,632.86	10,357.32 (47.88)
4	2009-10	8,644.83	5,874.39	13,840.35	28,359.57	13,640.51 (48.10)
5	2010-11	7,875.65	5,361.80	12,477.81	25,715.25	12,274.23 (47.73)

Source: <http://nrega.nic.in>.

The Table No. 04 shows that the programme was benefited to S.C., S.T., Physically disabled persons and women. In the year 2006-07; 9,050.54 lakh man days was generated was continually increased up to 25,715.25 lakh man days up to the year 2010-11. Out of total man days was generated under the programmes the share of women was 40.63 per cent in the year 2006-07 also increased up to 47.73 up to the year 2010-11. The average share of women in total person days was 45 per cent during the study period. In the year 2009-10 the share of women was 48.10 per cent. It is the big achievement of scheme for rural women empowerment in India.

Available Funds and its Utilization:

The utilization of resources available with the State government is also an important indicator to measure the success of the state in implementing the Act. The states that are able to utilize more resources reflect that on an average, they have been able to produce more person days of work and create more infrastructures in the villages. The national average during the five years for utilization of NREGA resources is merely 77.64 Per cent. The availability of resources and the utilization during the year 2006-07 to 2010-11 under the MGNREGA is mentioned in Table No. 06.

Table No. 05: Funds Available and Actual Expenditure Under MGNREGA

Sr. No.	Year	Funds Available	Actual Expenditure	% of Utilization
1	2006-07	12,074	8,823.36	73.10
2	2007-08	19,279	15,858.84	82.26
3	2008-09	36,300	27,250.68	75.07
4	2009-10	45,682	37,909.78	82.99
5	2010-11	52,649	39,377.27	74.79

Source: <http://nrega.nic.in>.

The funding of MGNREGA is shared between both the Central and State Governments. Table No. 05 gives the information about funds available and actual expenditure of the scheme during the period 2006-07 to 2010-11 including percentage of utilization. The table shows that in the year 2006-07 Rs. 12,074 crores available is increased up to 52,649 crore up to the year 2010-11. Percentage of utilization shows that 73.10 per cent funds were utilized in the year 2006-07 followed by 82.26, 75.07, 82.99 and 74.79 per cent up to the year 2010-11.

CONCLUSION

One major, and indeed unique, programme for poverty alleviation through employment generation and asset creation and which has elicited world-wide attention, is the ***Mahatma Gandhi National Rural Employment Guarantee Act***. It is based on the genius of using public works to play the role of a safety net by providing stabilization benefit to the rural poor who lack skills of any kind except perhaps possess physical stamina. It has enabled the deployment of labour of the poor to build infrastructure for development. Its preponderant and immediate benefit every year, especially during times of distress due to droughts, is the effect of enabling the poor to handle the risk of decrease in consumption. The National Advisory Committee note that the cost of employment guarantee is anticipated to rise from 0.5 per cent of GDP in 2005-06 to 1 per cent of GDP in 2008-09. The United Nation rural poverty report, however notes some of India's exemplary rural poverty mitigation measures. Villages close to towns and cities have a better record of reducing poverty than others. Taking note of the landmark MGNREGA, it is noted that by 2010-11 the scheme provided 100 days employment to millions of poor rural households. Decreased out-migration has been recorded along with a rise in agricultural wages owing to better bargaining power for the agricultural labour in rural areas.

- The MGNREGA covering 34 States and Union Territories, 614 Districts, 6,096 Blocks and 2.65 lakhs Gram Panchayats.
- The 2010-11 Budget had provided 40,100 crore for MGNREGA, making it the highest allocation for any single social welfare scheme since independence of India.
- A percentage indeed shows the growth in Job Cards issued to rural people from 100 points to 316.57 points during the five years.
- The study shows that 99 per cent people who have applied for jobs have got employment under MGNREGA.

- The study shows that the scheme was benefited to S.C., S.T., Physically disabled persons and women.
- In the year 2006-07; 9,050.54 lakh man days was generated was continually increased up to 25,715.25 lakh man days up to the year 2010-11.
- The study shows that in the year 2006-07 Rs. 12,074 crore available to MGNREGA is increased up to 52,649 crore up to the year 2010-11.
- Percentage of funds utilization shows that 73.10 per cent funds were utilized in the year 2006-07 followed by 82.26, 75.07, 82.99 and 74.79 per cent up to the year 2010-11.
- The developmental and welfare initiatives undertaken by the Government of India in the rural areas in the last six decades is further strengthened during 2011-12. During 2011-12, development and welfare activities in the rural areas were continued with better employment opportunities through MGNREGA for larger number of people and enhanced livelihood opportunities.
- The MGNREGA provides an indispensable lifeline to the millions of poor in the rural areas of the country.
- The data clearly suggests that there is still scope for increasing the utilization of MGNREGA resources.
- The Act is a unique opportunity to activate and empower the Panchayati Raj Institutions.

Suggestions:

- The strong implementation of MGNREGA will require more money.
- The wage rate should be higher than the prevalent local market wage rates.
- The states should release their share of funds timely and also ensure the full and proper utilization.
- Guaranteed employment would be a major source of empowerment of women. The study shows that a large proportion of labourers employed under MGNREGA are likely to be women and guaranteed employment will give them some economic independence.
- The scope of the scheme is limited which needs to be widened. Animal husbandry, food processing, cottage, handicrafts, schooling, health care, child care, housing and sanitation etc. also need to be brought under the ambit of the scheme.
- To have a greater impact the ongoing rural development programmes should be integrated into the MGNREGA.
- 100 days offer of employment to a family in one financial year is in no way sufficient to sustain a family leave aside helping them cross the poverty line. The BPL families should be offered at least 200 days of work as against 100 days for others.

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A Study on the Influence of Confucian Values on the Performance of Asian Firms

Huei-Ting Tasi

ABSTRACT

This paper investigates the influences of the Confucian values on the performance of Asian multinational firms. By collecting data from the top 200 companies in Taiwan, this study found out that "Righteousness" and "Knowledge" positively strengthen the relationship between degree of internationalization and corporate performance. It also found that "Benevolence" significantly strengthens the relationship between networking ability and corporate performance. Moreover, the result shows that "Integrity" mediates the relationship between networking ability and corporate performance.

Keywords: internationalization, Confucian values, Asian firms

BANKING CONTAGION RISK

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Abstract- Contagion risk is basic element of economic concept for understanding of financial crises. The term of contagion has been transferred from health and epidemic area to business and economics area. From economic perspective, the term expressed as contagion risk and connected with transmission of negative event among the financial institution. This contagion risk has same meaning to systemic risk and other researchers called it as concentration risk. Furthermore, the contagion risk is also explained as risk or difficulty that face one or more of financial system then it will spell it over the whole financial institution. Many scholars in this area believe that the source of such risk is either the spreading of disease from one individual to another by direct or indirect contact or the spreading of an emotion, idea, custom, etc. From person to person until many are affected; as, the contagion of gaiety. The potential of this paper that it accumulates most of researcher ideas and proposals in this topic since it is the oppressive topic in contemporary days.

Introduction

Contagion risk is basic element of economic concept for understanding of financial crises (bandt and hartmann, 2000). The term of contagion has been transferred from health and epidemic area to business and economics area. From economic perspective, the term expressed as contagion risk and connected with transmission of negative event among the financial institution. This contagion risk has same meaning to systemic risk (kaufman, 1992 and blavarg and nimander, 2002) and other researchers called as concentration risk (bonollo basl).

And Chan-Lau et al., 2007 and Schoenmaker, 1996 also explain the contagion as risk or difficulty that face one or more of financial system then it will spell it over the whole financial institution. Furthermore, Kaufman, 1992 defined the phrase according to Webster's Dictionary which expresses three definitions for contagion:

- 1- The spreading of disease from one individual to another by direct or indirect contact.
- 2- The spreading of an emotion, idea, custom, etc. from person to person until many are affected; as, the contagion of gaiety.
- 3- A bad influence that tends to spread; corruption; as, racial hatred is a contagion.

The most of researchers accept the connection between spreading a negative consequences and contagion risk such as Harrington, 2009 who define the Systemic risk refers to the risk of widespread harm to financial institutions and associated spillovers on the real economy that may arise from interdependencies among those institutions and associated risk of contagion. But there are some of researchers who define the phrase from different angle since the meaning is different as people and situation is different (Kaufman and Scott, 2002 and Harrington, 2009).

For example, kaufman and scott, 2002 and Bartholomew and Whalen 1995 identify the systematic risk as a negative macro shock event that influence the whole economic system whether connected directly or indirectly (in domestic and in international) and it is result from small shocks (Cifuentes et al., 2005). However, Harrington, 2009 has distinct between Systemic risk and the risk of common shocks to the economy that has the potential to harm large numbers of people and firms directly without contagion.

But he stated that delayed response to the common shock might give the appearance of contagion. Furthermore, Bandt and Hartmann, 2000 also recorded that in practical crisis situations both aggregate shocks and contagious failures may sometimes become intertwined, since macroeconomic downturns might weaken financial institutions, making contagion of single failures more likely. Similarly, it might be necessary for contagion effects to materialize that the initial shock impairs more than just one financial institution, for example

Moreover it could be define as risk that spread directly by chain reaction event and Kaufman 1995, Kaufman and Scott, 2003 reported a same definition which is "cumulative losses will accrue from an event that sets in motion a series of successive losses along a chain of institutions or markets comprising a system". The contagion risk described here like domino effect or like mountaineers, when one rock falls off, others rock are pulled off. So the close and direct connections between the institutions are main factor for risk transimation.

Crockett 1997 give example to explain this type of risk "if Bank A, for whatever reason, defaults on a loan, deposit, or other payment to Bank B, thereby producing a loss greater than B's capital and forcing it to default on payment to Bank C, thereby producing a loss greater than C's capital, and so on down the chain". He provide definition for contagion as "a difficulties at one financial intermediary appear to have the effect of undermining confidence more generally, so experience suggests that sharp movements in one market can destabilize others".

And Harrington, 2009 give this second definition as source for systemic risk. He stated that: shocks to some firms may make them unable to honor their commitments, causing some of their counterparties to likewise default, with repercussions that cascade through financial markets.

Third definition concentrated in spill the risk over the economic but could be without direct connection or with same attribute. And same basis defined by Kaufman and SCOTT, 2002 who defined it as "a systemic risk also focuses on spillover from an initial exogenous external shock, but it does not involve direct causation and depends on weaker and more indirect connections." And this third definition is also consistence with Harrington, 2009. He reported that contagion risk exist when shock may cause one or more financial institutions to sell large amounts of assets at temporarily depressed prices, further depressing prices and market values of institutions that hold similar assets.

Koble, 2011 agree also on difficulty to specific meaning to descript the contagion in finance and he give tow definition, first definition with theory that : " small shock which initially affect only a few institutions or a particular region of economy, spread by contagion to the rest of the financial sector and infect the lager economy" . second definition biases in widespread to explain the contagion meaning that" contagion is spread of financial difficulty from one economy to others in same region and beyond"

And Pericoli and Sbaria provide five definitions that could capture different concept1: is significant increase in the probability of crisis occurring in another country

- 2- It occurs when volatility of asset prices spill over from the crisis country to other country.
- 3- It occur when cross country co movement of asset prices cant not be explained by fundamentals.
- 4- It is significant increase in co movement of price and quantity across market, conditional on a crisis occurring in on market or group of market.
- 5-It is occurring when the transmission channel intensifies or more generally change after a shock in one market.

The Establishment

Bandt and Hartmann, 2000 define a systematic event in narrow sense as failure, of a financial market leads in a sequential fashion to considerable adverse effects on one or several other financial institutions or markets. But in board way is adverse effects and failure on a large number of institutions or markets as a consequence of severe and widespread shocks. Then he defined *Systemic risk* as the risk of experiencing systemic events in the strong sense (when financial institutions affected by them actually fail or crash).

Huang et al., 2009 recorded that Systemic risk and health of a financial system has been measure traditionally by focusing on banks' balance sheet information such as non-performing loan ratios, earnings and profitability, liquidity and capital adequacy ratios. And In recent day, there have been growing efforts recently to measure the soundness of a financial system based on information from financial markets, for example: the probability of a given number of simultaneous bank defaults, from equity return data (Huang et al., 2009).

The economics literature has identified at least four sources of systemic risk according to Harrington, 2009:

1. The risk of asset price contagion, where a shock causes one or more financial institutions to have to sell large amounts of assets at temporarily depressed prices, thereby further depressing prices and market values of institutions that hold similar assets (Cifuentes et al., 2005).
2. The risk of counterparty contagion, where shocks to some firms make them unable to honor commitments to counterparties, thereby causing some of the counterparties to likewise default on their commitments, with repercussions that cascade through financial markets(through direct balance sheet interlinkages) (Cifuentes et al., 2005);
- 3- The risk of contagion due to uncertainty and opacity of information, where the revelation of financial problems at some institutions creates uncertainty about the effects on counterparties and whether other institutions face similar problems, so that parties become reluctant to trade until further information becomes available; and
4. The risk of irrational contagion, where investors and/or customers withdraw funds without regard to whether specific institutions are at risk.

Financial Stability And Contagion Risk

Crockett 1997 report that" instability can generate sizable negative spillover effects" so, there is relationship between existing the contagion effect and financial instability. And Bandt and Hartmann, 2000 stated that contagion risk includes simultaneous financial instabilities following aggregate shocks. The recent financial crisis has emphasized the importance of contagion and systemic risk, defined as risk which can influence the stability of the financial system as a whole (Crockett 1997). Financial instability cause wider economic damage such as investors, employee, depositors and unsecured credit (Crockett 1997). He defines the financial stability as good thing and based on the stability of the key institutions and markets that go to make up the financial system. Firstly based on the

key institutions in the financial system are stable, in that there is a high degree of confidence that they can continue to meet their contractual obligations without interruption or outside assistance.

furthermore, Stability in financial institutions means the absence of stresses that have the potential to cause measurable economic harm beyond a strictly limited group of customers and counterparties; second the key *markets* are stable, in that participants can confidently transact in them at prices that reflect fundamental forces and that do not vary substantially over short periods when there have been no changes in fundamentals. Furthermore, stability in financial markets means the absence of price movements that cause wider economic damage. Prices can and should move to reflect changes in economic fundamentals”.

There are some name for the institutions that concern about the financial stability issues that has been addressed by Alawode and Al Sadek, 2008:

such as the Financial Stability Forum, Basle Committee on Banking Supervision, Financial Stability Institute, Committee on the Global Financial System, Committee on Payment and Settlement Systems, International Association of Insurance Supervisors, International Accounting Standards Board, International Organization of Securities Commissions and the International Association of Deposit Insurers. There is also the Counterparty Risk Management Policy Group, a private sector organization devoted to fostering financial stability.

Since, study the issue around the financial stability is very important to create a more favorable environment for depositors and investors for making contracts, enhances the efficiency of financial intermediation and helps improve allocation of real resources. It provides a better environment for the implementation of macroeconomic policy. Instability, on the other hand, can have damaging consequences, from the fiscal costs of bailing out troubled institutions to the real GNP losses associated with banking and currency crises.

Reason behind the financial instability and systematic risk: described by Crockett1996:

- 1- The growth in the volume of financial transactions
- 2- and the increasing integration of capital markets have made institutions in the financial sector more interdependent
- 3- International capital flows, though generally beneficial for the efficient allocation of savings and investment, now have the power in unstable conditions to undermine national economic policies and destabilize financial systems.
- 4- The increased complexity of new instruments makes it harder for senior management in financial firms, let alone supervisory authorities, to understand intuitively the risks to which the institutions concerned are exposed
- 5- There are fears that the models underlying the pricing of the new instruments may not be sufficiently robust.

Advantage& Disadvantage

Advantage:

- 1-Although risk of contagion is crucial as a motive for a public interest in banking systems,
- 2- It is striking how little this is reflected in regulatory systems. Regulation and supervision are to a very large extent directed at avoiding the failure of individual banks rather than the failure of the system as a whole (Blavarg and Nimander, 2002).
- 3-the more frequent banking crises are, the more likely are market participants to become both better prepared and better informed, the sorting-out and liquidity-problem periods to be shorter, and the duration of any overshooting to be briefer (kaufman and Scott, 2003)
- 4-Lang and Stultz (1992) and (Acharya and Yorulmazer, 2002) argue that Bankruptcy has positive and negative effect. ‘Competitive effect’ is positive spillover effect that increases the value of the competitors’ equity due to redistribution (Gregoriou, 2010).
- 5-Contagion is one of the basic reasons why public authorities are concerned with the health and survival of individual financial institutions (Crockett 1997).

Disadvantage:

- 1- ‘Contagion effect’ is negative spillover effect that reduce the value of the bank and their counterparties equity due to distribution (Gregoriou,2010).
- 2- during the sorting-out period, the fire sale-driven changes in both financial quantities (flows) and prices (interest rates) are likely to overshoot their ultimate equilibrium levels because of an uncertainty discount and thus to intensify the liquidity problems, particularly for more vulnerable units (Kaminsky and Schmukler 1999 and Blavarg and Nimander, 2002).
- 3- The problem of direct contagion is normally seen as the risk that a failure of one bank will lead to credit losses for other banks that are so great that their solvency is also threatened – if one bank falls, other will follow like dominoes. So solvency bank will influence.
- 4- Contagion effects at other financial institutions. Potentially more serious than the losses that accrue to individual depositors at a failed institution is the danger that difficulties may be propagated more widely (Crockett 1997).

5- If the failure of one institution causes a contagious loss of confidence elsewhere, the adverse consequences to the system as a whole may be much greater than those resulting from the initial disruption (Crockett 1997).

6- systemic risk in networks business may be larger than thought, even in the presence of collateralization. The reason is that the risk that materializes is not a credit risk but the interaction of credit risk and market (Cifuentes et al, 2005).

1- risk, exacerbated by counterparty risk.

Types

The contagion has a different of types and term or name given to each type is different as research is different but content of each type is similar. Aharoni and Swary (1983) defined two types for contagion: pure and relational contagion. Pure contagion is risks that spill it over one institution to other when expectation loss and adverse information has been anticipated by investors (depositors), economic, political parties. Then investors and/or customers withdraw their funds without regard to whether specific institutions are at risk (Harrington, 2009).

And pure contagion some time called as random, noisy, irrational or non information contagion (Gregoriou and Lyons, 2010 and Kaufman and Scott, 2003). Groppe and Moreman (2004) assert that study that captures the influencing of pure contagion in economic is not suitable by using event study approach or by empirical observing because the central bank interference (Hasman and Samartin (2008).

Pure contagion related with agent who could find difficulty to differentiation between parties so it will influence solvents well as insolvent (Kaufman and Scott, 2003). And pure contagion related to revelation of financial problems at some institutions that may be create uncertainty about the effects on counterparties and whether other institutions face similar problems, so that parties become reluctant to trade until further (Harrington, 2009).

In 1983 the authors define the relational contagion as adverse or negative event that transmitted from one institution to other with similar characteristics. And shock with rational contagion providing complete information (full revelation of new information) (Gregoriou and Lyons, 2010). And investors have ability to make differentiation between solvent and insolvent institution (Kaufman and Scott, 2003). And rational contagion some time called as efficient or information contagion.

Generally, the above discussion reveal that pure contagion could not be exist but it is expectation for loss but rational contagion is exists in economic. Blavarg and Nimander, 2002 categorized the contagion risk into direct and indirect risk. He define direct contagion risk as "arises because banks are financially exposed to one another, both through the payment system and through other types of positions such as outright loans, derivatives, repurchase agreements et cetera.

And they also define indirect contagion risk as result of wrong expectation about existing the direct risk or anticipating the spread of negative event in whole system. And this definition same as Crockett 1997 definition who reported that strains at one financial institution provoke a loss of deposits from, or an unwillingness to enter into transactions with, other firms that are also thought to be vulnerable.

Issue or Event That Signal the Contagion Risk

Gregoriou, 2010 reported that events associated with contagion

- announcements of loan losses
- Dividend reductions or bailouts.
- Announcement of unexpected increase in Loan-loss reserve.
- Bank-Merger Announcement- Impact of acquisition program on acquiring firm.
- Banking sector negative earnings surprises.
- Bank failure
- Debt crisis (closely related to the bank failure literature).

Factors inflecting the contagion risk:

First: linkage or connection

(scott and kufoman, 2003) Contagion risk that related to chain-reaction and the common-shock concepts, are more likely to express it when there are direct or indirect connection among the parties. In financial sector especially in the bank, the bank connected directly through interbank deposits, loans, and payment-system or connected indirectly through saving or operating same unit. Furthermore, The rate of emerging contagion risk is expected to be high with banks that are operate across national borders(or across local financial system or board) since the adverse shock by one of large bank is enough to drive a loss to other bank along the chain reaction.

And bored, 2008 has also reported that financial crises have always an international dimension because Contagion spreads quickly through asset markets, through international banking and Stock market crashes and banking panics often have occurred in many countries within a few months of the original shock. And IMF in 2007 has reported that the world largest systematic bank and which

has the position and role as a center for global finance also raises the possibility that it may be a potential source of major spillovers, or "contagion," in the global financial system.

And IMF Such of bank could be major conduit for contagion during stressful periods because it dominates international financial market activity, home and host to some of the biggest financial institutions in the world. And is also offers a wide range of services, in areas such as asset management (hedge funds, mutual funds, and pension funds), banking (commercial, investment, and private banking), insurance and reinsurance. As well as access to key capital and commodity markets ((UK bank) stock market is the world third largest by capitalization, foreign listing is second largest in the world and it is third largest insurance industries in the world). It is also a major trading center for commodities (IMF).

In other world, the increasing links between financial institutions mean that a shock to one financial institution could be quickly transmitted across the financial system, giving rise to systemic liquidity problems (Chan-Lau and Ong, 2006). There are many linkage that are conduit it the contagion in financial institutions such as direct and indirect equity exposures through the local banks in overseas banks (banks have foreign equity exposure in various other markets through their expansion overseas to diversify their sources of earnings, and invest or lend in markets with higher growth prospects)

(IMF) or through shareholdings of local banks by foreign banks (Foreign ownership in the banking system has increased) and Foreign resident banks in both liability and asset.

And it is also direct exposures through loan books; deposit and funding sources from overseas and/or from foreign banks operating inside country; payments and settlement systems; holdings of credit risk transfer (CRT) instruments written on assets held by local and/or overseas institutions; the interbank lending and any disruption on the liquidity could transmitted the risk overseas rapidly. Even, Blavarg and Nimander, 2002 founded the effect of direct contagion from foreign counterparties is very slight for the banking system in their sampling.

But they found that probability of direct contagion effected from foreign exchange but this effected depend on size of the foreign to the total exposures. And scott and kufoman, 2004 also found that contagion risk and loss at bank spell over other bank when it related or entered in to exchange transaction with this insolvent bank. So the connection by exchange transaction or connection directly or indirectly through across national borders operation could be channel for systematic risk and financial crisis (Mishkin, 1990).

Credit relationship increase agent interdependent and interconnected then the existing of systematic risk with this agent expected to be high (Falk fetch, 2011). When insolvent exist in one institution, this event will influence the creditors and led them to write down, such of action will directly transmitted to other institution through a chain reaction, then the crisis will spread in whole financial system. (IMF) and Falk fetch, 2011 these above external linkage make characteristics or attributed, that has risen and contributed for generating the contagion risk across the institution such as the degree of global interconnected, the degree of vast and varied in financial market, are different from one institution to other.

Blavrag and Nimander, 2002 also recoded that the contagion risk is more likely to be active when the interconnected between the banks increased. However, this contagion risk expected to be a bigger problem with concentrated system, since the large banks have fewer alternatives to deal with in the inter-bank markets. Failure of this large bank could pose a systemic threat to whole banking system, the measurement of direct contagion was conducted and supervision by the large concentrated bank and reporting is costly for bank.

Banking Characteristics

a- types of institution:

Crockett in 1997 discussed some Q that could exemplify how institutions type and other characteristic could be reason behind emerging the contagion risk : (bank and non bank) Is whether all financial institutions and all markets should be treated similarly. 2- Are problems in the banking sector to be considered in the same light as problems at nonbank financial institutions? Is the failure of a big bank the same as that of a small bank? This raises two further issues: are banks special? And are some institutions "too big to fail"?

The bank is most important institution so it demands and warrant for a special treatment in the preservation of financial stability. And Kaufman, 1992 also ask the first question in how broad contagion can spread within the banking sector? And why this is serious? He recorded that contagion is widely occur in banking than in other industries and to be more severe when it does occur and it require government regulation. And Harrington

, 2009 also recoded the requirement for broad government guarantees of bank deposits and strict capital requirements.

Because banking contagion transmitted in domino fashion not only to bringing down other bank, corporation, disrupting markets but it was bringing down investment banks along with the whole system.

Crockett, 1997 also account the issues with the bank, Firstly, because the banks' liabilities are repayable at par on demand, while their assets are typically comparatively illiquid and banker hold longer term asset that are less readily marketable and have an

uncertain value. This makes them more liable to runs that cause illiquidity and even insolvency. Secondly is that bank remaining responsible for the operation of the payment system. This means that difficulties at one institution are risk transmitted to the rest of the financial system.

Third, when the delay depositors withdraw their fund, they will recognize that bank capital eroded by a fire-sale of less marketable asset, this mean the value of a bank is greater as a going concern than it is in a forced liquidation. And the leverage inherent in banks' operations, forced liquidation is more likely than in the case of nonfinancial firms. Then he concluded that the bank is special under the instability financial system and has capability to generate systemic contagion.

Along with scott and kufoman, 2003 who reported that is contagion risk probability, strength, speed and breadth are greater for banking than other sectors but percentage of adverse shock depending on the strength and characteristics of the initial shock affected. kufoman,1992 account the reason behind why the Contagion risk in banking are unique: first the failure of a bank are faster transmitted to other banks and faster the transmission occurs, the more difficult it is for units to develop their protection after the shock has occurred (scott and kufoman,2003).

When bank is fail, the number of demand depositors at these banks increased to exchange their deposits for deposits at other banks or currency at par value. To satisfy the depositors, banks generally must sell assets quickly by fire-sale prices or borrow funds quickly at high interest rates. In either case, a bank experiencing runs is likely to meet liquidity problems and solvency problems if the losses are sufficiently great (kufoman,1992). In these regards scott and kufoman, 2003 recoded that non-financial sector is slowly transmission the adverse shocks and units generally have time to act to protect themselves after the initial shock has occurred.

And the availability of sophisticated telecommunications and computer technology, such runs can occur almost immediately and without warning upon news of a shock (kufoman, 1992).

Second: Bank contagion is broader within the industry because the Depositors are less informed about the financial condition both of their banks and in other banks in the industry than are creditors of nonbank firms. Third: Smaller adverse shock can drive a bank into insolvency than other. This because the bank hold a lower capital to asset ratio comparing to other financial firms and nonfinancial firms such as insurance (Harrington, 2009). Because the lower capital ratios in banking may be attributed in large part to the existence of federal deposit insurance that reduces market discipline by depositors, the primary function of capital is to absorb losses so that they are not charged to creditors (depositors) and do not drive the bank into insolvency, a smaller capital ratio provides less protection against failure from a given adverse shock.

Fourth: Bank contagion results in larger losses to creditors (depositors) because adverse shocks with lower capital ratios cause the bank failure and create losses in excess of capita. This losses must thus be charged against deposits who less protection comparable to creditors. Fifth: Bank contagion extends beyond the banking industry to adversely affect other financial industries and the macroeconomic. Because bank deposits (and before them bank notes) serve as the largest component of the money supply and money is used to conduct transactions and affects all sectors of the economy, changes in the quantity of deposits directly affect the welfare of individual Communities and the macroeconomic.

And also because deposits are both the most widely held private financial asset and the most liquid part of most households' wealth, losses are likely to have a larger adverse impact on aggregate economic activity than comparable losses in other, riskier financial assets. banks operate the nation's payments system and the largest financial institution and the heart of the payments system, disruptions are likely to spillover to other financial industries, to impose losses on participants and reduce the volume of trade. Because banks are the largest financial institution and the heart of the payments system, their financial problems are more likely to spillover to other financial industries.

Sixth: Banks played a key role in the traditional story because bank credit in large part financed the boom, and the bust was often accompanied by bank failures and banking panics events which eventually ade the downturn worse. And (Schoenmaker) reported that is run and contagion risk in banking system has been studied by many researchers such as Kaufman (1994) and fist question it was how broad contagion can spread within the banking sector, And in bank, negative abnormal return has been used as evidence for effecting the contagion by many researches such as Aharony and Swary, 1983; Swary, 1986; Peavy and Hempel, 1988)

Furthermore, Ali, 2004 also justify the reason behind exiting of crisis in banking sectors that affected banks are infected much earlier than realized by the regulators. And delayed realization of a bank's troubles coming from banks are different from non-financial firms in that the output and production processes of nonfinancial firms are more transparent than that of banks, where most of the banking products or services include a promise to pay in the future. Loss in non-financial firms are immediately passed on to the shareholders and its debtors take queue from the falling prices there is no such mechanism for the banks who can hide their losses by raising more deposits. A difficulty to sell the loan when liquidity need it.

Banking Structure

Ali, 2004 also recoded that Banking structure is also contributes to the occurrence of crisis in banking system. IB is similar to conventional banks in theory and in practice. But Islamic banks have some features that are distinct to them. Because IB is a combination of religious, economic, political and other historical factors that have influenced the development of its structure. The

structural in IB and conventional bank is different, and then a structure expected to bear the issue of financial distress differently. For example in conventional bank, institution taking a deposit in liability said with promised to offer fixed return to depositors.

While in assets said, loans are subject to credit risk and earn variable interest leading to interest rate risk. There always exists a risk of maturity mismatch because; its demand deposits are of shorter maturity while its loans are for longer duration. These features make the banking sector prone to crisis in wake of any shock or decreased confidence of the depositors. But in IB is more stable in theory according to Khan 1987 and Ahmed 2002) because it is linking of returns on deposits with returns on assets of the bank. This linking serves as a disciplinary device, increases the efficiency of the bank and the financial system and serves as a stabilization device saving the banks from deposit runs in crisis situation.

because when the value of assets of the bank decline due to some shock the liability of the bank also decreases correspondingly due to profit sharing nature of the deposit contracts. And by avoiding a domino effect also adds to the stability of the financial system as a whole. However, a crisis that may develop in the conventional banking sector can potentially affect Islamic banks through contagion effect as well as through a general loss of confidence in the banking sector. There are other structural features discussed by Ali, 2004 that contribute to financial distress in IB.

C: size

In many respects size has become more important than an institution's formal character in determining its systemic significance *Crockett, 1997*. Too big to fail (TBTF) can be measured in terms of an institution's size relative to the national and international marketplace (PCI). And the rule TBTF is always has been used to study the systematic risk. For example, the institution (includes both banks and nonbanks) that located at center point in financial system and it has a large obligation with many counterparties, so their failure would comprise a systemic crisis.

Third: Asset price

The another example for how is linking channel could spread a contagion risk is Financial and other asset markets which related to or has link with saving and investment decisions and it could affect other macroeconomic variables than do developments in markets for goods and services (*Crockett1997*). Bored, 2008 also reported that Stock market crashes can be serious events leading to a decline in wealth and on consumption and also a scramble for liquidity in turn contributing to incipient banking crises. So public always associates the beginning of the Depression with the stock market crash

Ilshkin, 1990 reported that financial crises either involve sharp declines in asset prices, failures of large financial and nonfinancial firms; deflations or disinflations, disruptions in foreign exchange markets, or some combination of all of these. Any of these events have potential serious consequences for the aggregate economy and expanded role for government intervention. He also suggests that a stock market crash to be accompanied by a sharp rise in both the level of interest rates and the interest rate spread according to his analysis.

Furthermore, Movements in asset prices influence all of the channels by which monetary policy traditionally affects the real economy: the interest rate channel, the wealth channel, the exchange rate channel. Changing the prices of financial assets depend on expected change on savings and investment return ; or through generalized effects on consumer and business confidence (*Crockett1997*). And Gregoriou, 2010 who reported that expected change on stock price depend on general information that is available in normal days. The stock prices react quickly and accurately to new information when the stock market is efficient and market valuation reflects the net present value of future profits. But In traumatic days, the new information expected to be thick and fast (Gregoriou, 2010)

The asset price expected to be unstable and volatile and has the ability to create "spillover" effects of various kinds (*Crockett1997*). This spillover effect occurs when asset price movements undermine the stability of financial institutions. This can happen if intermediaries are heavily exposed to certain categories of assets, if their lending is secured on such assets. It can also occur if financial institutions have mismatched foreign currency or interest rate books, or if higher volatility suddenly increases the costs of hedging options positions.

Capital Asset

scott and kufoman, 2003 recorded that the size of capital is one of the factors that must be measured when contagion expressed in economic. For example, Harrington, 2009 reported that Systemic risk is low in insurance markets (property/casualty insurance) compared with banking because insurers hold greater amounts of capital in relation to their liabilities, reducing their vulnerability to shocks. Scott and Kufoman, 2003 stated that holding sufficient capital is one of tool that can be used by institution to protected them self, to absorb any losses from their association with an infected bank or from runs by their depositors, to stop the risk transmission and to keep themselves solvent. The bank with small capital-asset ratio expected to be more leveraged it.

And contagion risk expected to be fast and will transmit loss from insolvencies of banks located earlier on the transmission chain to solvent and insolvent banks that located later on the chain. Scott and kufoman, 2003 stated that is initial shock to be transmitted successfully and to bring down other banks but losses must exceed capital at each bank along the chain. Blavarg and Nimander, 2002

also reported that default loss occur if one or several banks suffered such large losses when their capital was below the statutory levels or to such a level of capital that the bank could not refinance itself in the market.

scott and kufoman, 2003 But the level of sufficient capital to keep bank solvent depend on (capital) Banks with sufficient capital to absorb the transmitted losses will remain solvent, although they may be weakened, and thus will stop the cascading.

The amount of capital required to remain solvent depends on the exposure of a particular bank to other units, on the size of expecting risk and time.

Fifth: deposit insurance

The creditors and depositors must to have sufficient protection in their hand before any adverse shock transited to them such as deposit insurance. When the insurance or secure or guarantees is absence in banking. So such of bank expected to guard themselves from any adverse chock by charge higher interest rates on riskier investments, monitoring their counterparties carefully, to require more and better collateral, and holding sufficient capital (scott and kufoman, 2003).

And federal provide and raised deposit insurance coverage while some have provided full coverage in order to limit contagion risk according to Chu, 2011. scott and kufoman, 2003 provide an example of fully deposit insurance: in 1984 in US the continental Illinois bank was failed but creditors and investors' bank protected from that is adverse shock because federal deposit Insurance Corporation fully protected them. So deposit insurance has proved effectively and successfully in stopping the bank runs and contagion spread in the United States but with cost according to scott and kufoman, 2004 suggestion.

This cost connected with deposit insurance when federal fully protect the bank without any charge. So such of banks had little reason to pay close attention to the financial condition of their interbank payments to counterparties (scott and kufoman, 2003; Hancock et al., 1996; Gupta and Misra, 1999). Furthermore, according to Gregoriou et al., 2010 and (chu, 2011) who stated that is insurance and rescue will generate moral hazard, feed excessive risk taking by bankers and fail to maintaining banking stability for long time.

This in turn increases the risk of future bank failure or intervention which is unlikely to be controlled by adequate regulation preserve. Moreover, deposit insurance does not prevent bank runs at all because under such of schema small depositors do not have incentives to run on banks since their deposits are fully covered (chu, 2011). But uninsured large depositors still have incentives to run bank. Deposit insurance could be reason behind absence of bank runs and financial stability (chu, 2011).

But it may also mean a time bomb is ticking when depositors have no incentives to monitor banks. Fully deposit insurance coverage leads to weaken market discipline. The lack of market discipline allow bankers and regulators to sweep their problems under the carpet. And it will be too late for the public to find out when there is a financial meltdown due to mismanagement and regulatory forbearance. And risky banks lobby for extensive deposit insurance coverage (chu, 2011).

And the diseconomies of a bank failure do not vanish when deposit insurance exists. The trouble of the social cost might instead be shifted, in part, from bank customers to taxpayers (Paroush, 19988). Laeven (2004) finds that deposit insurance coverage is significantly higher in countries where poorly capitalized banks dominate and depositors are poorly educated.

And empirical result by (chu, 2011) and Onder and Ozyildirim (2008) indicate that the percentage of bank deposits insured and the bank failure rate are positively related to each other. And this also consistence with famous advice that has given by Oliver Wendell Holmes who stated that "Put not your trust in Money, but put your money in trust." However, according to (chu, 2011) the number of deposit insurance has growing up and it has been higher than before. Because higher or full deposit insurance coverage have succeeded in controlling bank runs even temporarily but low coverage or partial coverage may be ineffective in limitation the bank runs (Carse 2008, Schih 2008).

And chu, 2011 suggested that Deposit insurance maintains and promotes financial stability by preventing inefficient bank runs arising from asymmetric information and self-fulfilling prophecies. He also reported that the damage of a bank run can be severe and long-lasting as the bank's overall deposit balance did not recover even six months after the run. And examining the relations between deposit insurance design features and banking crises has been conducted by many researchers such as Cull et al., (2005) and Demirguc- and Detragiache (2002).

Government and Authority:

The government and their unique policy could also contributed effectively and sufficiently to stop the contagion risk (scott and kufoman, 2004). For example the unique policy giving both insured and often uninsured depositors at failed banks immediate access to the full amount of their insured funds and the estimated recovery value of their uninsured funds. Thus, there is no loss of liquidity to depositors or to the economy (Kaufman and Seelig 2002).

Chu, 2011 and Harrington, 2009 also stated that the objective of government and regulators response to the most severe systemic global financial crisis. And they have implemented various drastic regulatory measures to rescue the financial systems from meltdowns to avert deep economic downturns (Chu, 2011) and should to encourage market discipline as a means to promote safety and soundness in banking, insurance, and other financial institutions Harrington, 2009.

The relationship between systematic risk and existing of regulators action is very significant (Chu, 2011 and Mishkin,1999). Since, systemic risk combining two factors: the financial sector in general and the payment system, This combination of high probable social costs of failure and high fragility in the banking system. It is the main motive for regulating banks to exist in system (Blavarge and Nimander,2002).

(Chu, 2001)The authority response to financial risk by involvement governments' takeovers of banks or capital injections, quantitative easing techniques, provisions of liquidity by lax lender-of-last resort lending, lower discount rates, and more generous deposit insurance (Chu, 2001). The paroush,1998 has also documented the objective of supervision and regulation of the banking industry through monetary authorities which are responsible for conducting monetary policy, control the money supply by imposing restrictions on the banking system.

And the authorities do their best to avoid the social cost involved in bank failures. Authority has significant role when A bank fails to meet its obligations that could introduces instability into the whole banking system and generates external diseconomy by reducing public confidence in the system as a whole. So authorities restrict the "irresponsible conduct" of banks and maintain the safety and soundness of the financial system (paroush,1998).

And excessive risk-taking occurred was the inadequacy of the regulatory system. Even if there was no explicit government safety net for the banking system, there clearly was an implicit safety net that created a moral hazard problem. For example: depositors and foreign lenders to the banks in East Asia, knew that there were likely to be government bailouts to protect them, thus providing them with little incentive to monitor banks, with the result that these institutions had an incentive to take on excessive risk by aggressively seeking out new loan business.

Their policy must to responses to inefficient systemic events, it needs to be stressed that ex ante policies, measures trying to prevent a fundamental problem from actually arising (such as financial regulation and supervision or measures allowing market forces to be more effective), should always be the primary defense line. Because the asymmetric information problems also illustrate how financial problems can build up over an extended period of time before an efficient or inefficient crisis occurs (Bandt and Hartmann, 2000).

Regulation has been traditionally focused on assuring the soundness of individual-institution. More recently, there has been a trend towards focusing on the stability of the financial system as a whole, which is known as the macro-prudential perspective of banking regulation (Huang et al., 2009). In these day, the supervisory authority also concern about controlling the contagion risk by reducing the gaps between international concern (in financial stability and) BC (effective regulatory and supervisory standard). And regulatory must avoid adopting monetary and fiscal policies that produce them or to introduce policies that moderate them. However, the government could contribute to systematic risk by action that the governments' use the banks to pursue their nonbanking policies (Blavarge and Nimander, 2002).

And the government and their unique policy could also contribute effectively and sufficiently to increase the contagion risk by Chang the policy (Blavarge and Nimander,2002) and the number of government policy and regulatory failures contributed to the crisis. Changing the policy is one of factors that are increase the crisis (Harrington, 2009). Bordo, 2008 recorded that Crisis in us 2007 and 2008 occurred following two years of rising policy interest rate. Its causes include major changes in regulation, lax oversight, relaxation of normal standards of prudent lending and a prolonged period of abnormally low interest.

Lender of Last Resort

The role of a central bank can take on as lender of last resort which has two types of action (Bandt and Hartmann, 2000). The first, a general monetary policy expansion (lending to the market.), is one potential policy response to a systemic event resulting from an aggregate shock that affects many banks simultaneously. The second type of lender of last resort action, emergency liquidity assistance to individual banks, is a potential policy response to individual failures that, in the absence of such emergency lending, have a high likelihood of causing contagion.

So federal Reserve play an important role in eliminating and prevent contagion bank failure as founded by many researchers such as Schoenmaker, 1996; Saunders (1987; Solow, 1982 and Goodhart, 1987. Saunders (1987) and Schoenmaker, 1996 reported that are little evidence of contagion when Federal Reserve existed or intervened. According to Schoenmaker 1995, this Federal Reserve lender acting as lender of last resort that not allowed contagion risk to spread freely through the banking system.

And lender of last resort intervention has been taking in order to protect a 'competitive' market, or exogenous shocks that hit the banking system (Gregoriou, 2010). (Schoenmaker, 1995) But existing of lender of last resort must to be simulating with existing of regulated and supervised parties to control the adverse selection and moral hazard effects of such intervention. Bailout by capital injection, buying of toxic assets (or separation into State owned 'bad banks') or loan insurance has been included to support bank by LLR (Gregoriou, 2010). There was also a huge amount of systemic support received by all banks, including deposit insurance and Central Bank supply of plentiful and very cheap liquidity.

And international lender of last resort has more ability to extricate their countries form a financial crisis comparing with domestic lender of last resort. Because, liquidity provided from foreign sources does not lead to any of the undesirable consequences that result from the provision of liquidity by domestic authorities, foreign assistance does not lead to increased inflation, which through the cash-

flow mechanism would hurt domestic balance sheets, and it helps to stabilize the value of the domestic currency which strengthens domestic balance sheets. Furthermore, international lender of last resort has the ability to stop contagion by providing international reserves to emerging market countries threatened by speculative attacks so that they can keep their currencies from plummeting. This assistance can thus keep currency and therefore financial crises from spreading.

Corporate Governance

Corporate governance is also one of the factors that causes of crisis that will be transmitted from one institution to other such as East Asian financial crisis of 1997 to 1998 which has been cited by Mitton, 2001. Studying corporate governance is significant since the weak corporate governance practices could have made countries more vulnerable to a financial crisis and could have exacerbated the crisis once it began. And it is an important factor in financial market development and firm value because. Regarding the East Asian crisis, Johnson, Boone, Breach, and Friedman country-specific measures of corporate governance perform better than standard macroeconomic variables at explaining the extent of currency depreciation and stock market decline of emerging markets during the crisis as reported by Johnson et al., 2000.

(Mitton, 2001) Furthermore, corporate governance is the means by which minority shareholders are protected from expropriation by managers or controlling shareholders. Corporate governance could become more critical in a financial crisis. And expropriation of minority shareholders could become more severe during crisis. Since a crisis can lead to greater expropriation because managers are led to expropriate more as the expected return on investment falls. And a crisis could force investors to recognize and take account of weaknesses in corporate governance that existed all along (Rajan and Zingales, 1998).

Mitton, 2001 use firm level characteristics that related with corporate governance to examining the influencing of these characteristics in performance during East Asian crisis of 1997- 1998. He founded that stock price performance is significantly and positively associated with higher disclosure quality even through listed American depository receipt or auditors from Big Six accounting firms.

(Mitton, 2001) He reported that disclosure quality is an important element of corporate governance. Because accounting standards play a critical role in corporate governance by informing investors and by making contracts more verifiable, and higher disclosure quality benefits minority shareholders by increasing transparency and mitigating expropriation during period of distress. He founded that stock price performance is significantly and positively associated with outside ownership concentration.

And ownership concentration is one of key that determinants corporate governance. Large shareholders can benefit minority shareholders because they have the power and incentive to prevent expropriation and large shareholders can themselves engage in expropriation. And third variable has been used by Mitton, 2001 to determine the corporate governance is corporate diversification. Because the lower transparency of diversified firms in emerging markets results in a higher level of asymmetric information that may allow managers or controlling shareholders to more easily take advantage of minority shareholders. If expropriation of minority shareholders increases during a crisis period, then the associated loss in firm value could be particularly pronounced for diversified firms.

While diversification can also offer the benefit of improving capital allocation, particularly in emerging markets, this benefit could virtually disappear in a time of crisis as investment opportunities diminish. Mitton, 2001 found that Corporate diversification is associated with significantly worse stock price performance during the crisis.

Credit Contagion

Credit contagion can be another of source of the risk in business. This risk takes into account the occurrence of default events triggered by inter-dependencies (legal, financial, business-oriented) among obligors (basll). But the direction on contagion effect is not very clear as recoded by Rosch et al, 2008, since "the default of a large automobile company might cause financial distress for its suppliers, while conversely the automobile company might not be affected by a default of one of its suppliers".

And In traumatic day, the credit crunch expected to spell the contagion over the economic because new information and uncertainties were revealed thick and fast. (Gregoriou et al. 2010). And it soon became clear that no one knew exactly how inter-related individual banks and related institutions were. Not just because identifiable banks could lose out as counterparties (and if their survival was threatened, this would affect their counterparties and so on), but also because of hidden information about who were counterparties to whom.

And Roodman in 2008 described the crisis 2007 and 2008 in more detail and reported how default in subprime mortgages transmitted to investment banks and commercial banks in the U.S. and across the world by an elaborate network of derivatives, collapsing equities market and virulent credit crunch. He also stated that credit crunch continue and the burgeoning recession in the US and Europe plays out, then the emerges that are exposed to foreign capital will be affected as well as countries relying for their growth on exports to the US and Europe.

Furthermore, Rosch et al, 2008, Contagion effects indeed play a role in empirical credit portfolios and therefore should not be ignored when assessing credit risk. Very diverse approaches have been proposed to tackle this problem. Davis and Lo 2001 have built a first model where the default of any company in the portfolio can infect all the others company (basil). Defaults can occur either directly or indirectly through infection by other firm (Hatchett and Kuhn, 2006).

Jarrow and Yu, 2001 introduce default model for primary and secondary firm, default in primary firm depend on stochastic process while default on the secondary firm depend on performance and stochastic processes of the primary firm (Hatchett and Kuhn, 2006). Rogge and Schonbucher, 2003 introduce the model that quantify correlation in default. The model considered the impact a default obligor will have on the hazard rate of other obligor in portfolio (Hatchett and Kuhn, 2006).

And Fery and backhaus, 2003 and kraft and Steffensen, 2006 introduce continuous time markov models to describe the dynamics of transition of the indicators variables describing rating class of the obligor in portfolio (Hatchett and Kuhn, 2006). Egloff et al., 2004 have developed a neural-network like connections between borrowers which allow for a variety of inter-firm infections, this inspired model to mimic the structure of links among obligors in a portfolio. The model use asset return between business counterparties to explaining the micro structure of mutual dependence (Hatchett and Kuhn, 2006).

Another approach for modeling credit contagion dynamic was introduced by Hatchett and Kuhn, 2006 who use the probability of default in partiar time depend on materially on stat of its economic partners and macro economic influence. They found correlation in credit contagion improved default rate in economic stress. Another model by Neu/Kuhn (2004) NK hereafter) incorporates contagion effects into a Credit Metrics-like credit risk model, thereby linking contagion with state-of-the-art models (Rosch et al, 2008).

Recently Rosch et al, 2008 have proposed an extension of dl MODEL in a default mode scenario where obligors are divided into two categories: those who can be considered immune from contagion "I-firms" (infecting) and those who can be contaminated OR INFECTED "C-firms" least.

Conclusion

In this paper, we explain most recent models to measure possible contagion risk, which is defined as the risk that an initial bank failure may spill over to the rest of the banking industry and cause further bank failures. An autoregressive Poisson model is used to deal explicitly with the count nature of bank failure data. Although most earlier empirical studies (e.g. Aharony and Swary, 1983; Swary, 1986) find little evidence of contagion, this evidence is not conclusive as some of these US studies examine possible contagious effects during periods in which the Federal Reserve acted as lender of last resort. To avoid this pitfall, we use data from the US National Banking System, which was founded some fifty years before the establishment of the Federal Reserve.

The chronological enumerating indicates that bank failures are dependent after controlling for macro-economic influences. These results are consistent with the existence of contagion risk in banking. An initial failure could generate further failures without intervention by the authorities. The results are compatible with recent studies on contagion during the pre-Federal Reserve years (e.g. Grossman, 1993; Hasan and Dwyer, 1994). In spite of including more macro-economic variables to control for common factors than Grossman, we find stronger contagion effects. First, our methodology of Poisson regressions is better suited to deal with discrete data, such as bank failures, than Grossman's OLS regressions.

Second, the use of monthly, instead of quarterly, data allows us to capture more precisely possible effects of contagion, which is a fast-moving phenomenon. Our empirical findings underpin the view that lender of last resort assistance to individual banks may be justified in certain circumstances to prevent the potential contagious effects of bank failures (e.g. Solow, 1982; Goodhart, 1987). The central bank as lender of last resort should, however, not preserve all banks from failure, but should only prevent those failures that are expected to have a systemic impact. Furthermore, the banking sector that receives liquidity support may need to be regulated and supervised to contain the moral hazard effects of such lender of last resort intervention.

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Towards a holistic framework to understand entrepreneurship process and venture growth: Entrepreneurial B-C-G Process Model

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1. INTRODUCTION

Since last more than three decades, entrepreneurship has gained increased momentum and focus from all the stakeholders and this has resulted into increased focus on entrepreneurship research. The research in entrepreneurship has covered various facets ranging from entrepreneurial individual to process of new venture creation to impact of entrepreneurial venture on growth of an economy and society at large. However, in last more than four decades, the scope and focus of entrepreneurship research has expanded from individual to process and from variables to contextualization of working relationship between a set of inter-connected phenomenon.

As observed by Stevenson and Jarillo (1990), entrepreneurship literature has been concentrating on three key pillars : 1) Impact of entrepreneurial activity on economy and society at large 2) Behavioral aspect of entrepreneurial intention and 3) Process of entrepreneurship.

In this, the last question, i.e. the process of entrepreneurship was raised first by Jenk (1949) and Cole (1959). Though this has been the stream of research where least attention has been paid by various researchers, some path-breaking researchers such as Churchill & Lewis (1983), Gartner (1985), Bhawe (1994) etc. have contributed in this domain to expand the process view of entrepreneurship.

If we refer these past research studies in the field of entrepreneurship, we may come across a surfeit of different models and theories explaining various phenomena related to entrepreneurship. Moreover, it seems quite clear that these different schools have explored different, but highly inter-related aspects of entrepreneurship, such as the entrepreneur, the process of venture creation, i.e. entrepreneurship and outcome i.e. the enterprise.

But today, as Churchill (1997), in assessing the current state of the research, holds that, “the real challenge to entrepreneurship research is *understanding*”. He states that, “done exploratory studies, most of which are probing in nature, and begun to understand the breadth of the field. What is now called for is attention to constructing more fully developed theoretical frameworks encompassing a host of variables dictating, explaining cause and effect relationship, and guiding empirical research.” Therefore, a need is felt to develop a model which would bring these three inter-dependent and inter-related variables, i.e. entrepreneur, entrepreneurship and enterprise, together into a theoretical framework to find their inter-relationship in a holistic manner.

The researcher has, therefore, developed 'Entrepreneurial B-C-G Process Model' (Entrepreneurial Back-ground – Competence – Growth Process Model). The model proposes that entrepreneurial competence is the cornerstone for success of any venture. However, as discussed by Ray and Ramchandran (1995), entrepreneur can no more work in isolation to his immediate task environment. He is shaped by demographic, sociological and other environmental factors. It has been observed that these factors do play a definite role in shaping an entrepreneur what he is, and thus indirectly, contributes in policies and practices of an enterprise and its growth. With this conception in mind, the present research proposes "Entrepreneurial B-C-G (Background-Competence-Growth) Process Model" which explores relationship between entrepreneurial background, competence and growth. As depicted in Figure 1, the model is made-up of five main building blocks – Background factors, Entrepreneurial competence, Entrepreneurial motives, Entrepreneurial environment and Growth and success of an enterprise. In the following section, a brief review of each of these factors are provided with the help of in-depth review of literature.

2. REVIEW OF LITERATURE

Entrepreneurial competence

Furnham (1990) states "the term competence is new and fashionable, but the concept is old". White (1959) is the first one to scientifically identify and describe the term competence. According to him, competence is a set of individual's characteristics that lead him to perform better than others or result into performing a task with higher motivation.

Competency-based methodology was, however, popularized by Prof. David McClelland, who defined competence variables as "that could be used in predicting job performance and that were not biased by race, gender, or socioeconomic factors". On other hand, Boyatzis (1982) said that, "Competence is a combination of a motive, trait, skill, aspect of one's self-image or social role, or a body of relevant knowledge. In other words, a competency is any characteristic of an individual that might be related to successful performance."

A combination of these two definitions is given by Dyer (1996), when they defined Competence as "the knowledge, skills, abilities, and other attributes required to perform desired future behaviour". Here, Mirabile (1992) also line-up by defining Competence as, "knowledge, skills, abilities and behaviours required for successful performance of job duties". The profound researcher like Mitrani et al. (1992) agreed to this line of research by adding it as, "an underlying characteristic of an individual which is causally related to effective or superior performance in a job".

Mansfield (2004) listed three usages of competence: outcomes, tasks that people do and personal traits or characteristics.

To measure the set of competence, competence modeling has been identified as scientific approach which was originated almost four decades back. Dubois (1993) in defining competency models, states, "those competencies that are required for

satisfactory or exemplary job performance within the context of a person's job roles, responsibilities, and relationships in an organization and its internal and external environments”.

In context to entrepreneurship, since last more than three decades, researchers in the field of technopreneurship have explored the arena of competence and characteristics of an entrepreneur which leads him to success. For this, a number of competence assessment models to measure entrepreneurial competence are developed by various researches, viz (a) Competence General model of Boyatzis (Boyatzis, 1982) (b) Competence appraisal model by Xiaohong Liu, Da Ruan and Yang Xu (Liu, 2005) (c) Holistic model of professional competence (Cheetham and Chivers, 1998) (d) Daniel Goleman's Emotional Intelligence based competence model to analyse firm's performance (Goleman, 1998) (e) The job competence model (Mansfield and Mathews, 1985) (f) Kanungo and Misra's model of Entrepreneurial Resourcefulness (Kanungo and Misra, 1992) (h) McClelland's Competence Assessment Model (McClelland, 1986) etc. All these models have used differentiated method and variables to measure entrepreneurial competence. Therefore, the criteria specified by Dubois (1996) and Hendry and Maggio (1996) has been taken into consideration while selecting the model

An in-depth literature review has revealed that there exist different typologies of competence and competence mapping regarding entrepreneurship. For example, Berglund and Blomquist (1999) identified three types of competence: Market competence, technical competence and organizational competence. On other hand, Moreau (2000) asserts that for the purpose gaining advantage over competitor, an entrepreneur is suppose to have three core types of competences, i.e. sound relationship with customers, strong and well-defined processes and technological knowledge. Fai (2000) recognizes managerial, organizational and technological competence as important for competing in today's business environment.

Therefore, the study posits that:

Entrepreneurial competence is a prominent function for determining growth of an enterprise.

Background factors

Two broad categories of factors that can have a potential influence on entrepreneur can be defined as demographic and sociological factors.

Demographic Factors:

It has been identified that demographic profile of an entrepreneur have strong bearing on his competence and the way how he operates his business. A number of researchers have examined large number of demographic variables like age, gender, parental influence, education, job experience, marital status so on and so forth (Brockhaus, 1982). Along with this, there are plethora of literature available which criticized this school of thought based upon various parameters (Robinson et al.

1991).

Despite of this criticisms, it is included to understand their influence on entrepreneurial competence. For this, the present research study includes gender, age, educational qualification, previous job experience and formal training as prime demographic factors.

Sociological Factors:

A large body of research has made an attempt in the past to gauge the impact of socio-cultural factor on the development of entrepreneurship in context to an individual and society (Trivedi et al. 2010). In this, Jenks (1949) and subsequently other researchers in last five decades have found a relation between socio-cultural variables with the entrepreneurial performance. In this context, the population ecology model has been one of the prominent school of thought which propounded that the entrepreneurial emergence is largely an outcome of the environment (Hannman and Freeman, 1977).

Though the researchers do not completely agree with the Population Ecology Model, but going with Weber, entrepreneurs are definitely a product of the particular social conditions in which they live, and it is the society which contributes in shaping the personality of individuals as entrepreneurs (Weber, 1930). Baumol (1993) has also opined that there operates a relationship between entrepreneurship development and social reward system. Glade (1967) defined this in terms of 'Opportunity structure' wherein the role of an entrepreneur is to make decision-making within given environmental setup.

In Sociological factors, there are counts-less factors listed by various researchers having impact on the entrepreneurial performance. The factors like family background, social circle, values and belief system of the peers and colleagues, family background and family's financial situation, siblings, mentors, education system, community profile, ethnic group, religion and caste, role expectations and social sanctions, migratory status, association membership etc. are taken into consideration at national and international level.

Reviewing the present literature available on the subject, we can find that there is no clear distinction between demographic and sociological factors and there are number of incidence of over-lapping. For e.g. Misra and Kumar (2000) have considered Family Background as Demographic factor, on other hand, Pareek and Nadkarni (1978) consider the same as Sociological factor. To overcome this ambiguity, the background factors are divided into two parts: Demographic and Sociological factors, based upon the individualism-collectivism argument.

It is believed that the background factors do not have significant impact on development of entrepreneurial competence. Rather, this background factors are only considered to be motivating factors, i.e. they motivate a person to choose entrepreneurship as a career option. However, to empirically test their relationship with entrepreneurial competence, the study posit that:

Demographic and Sociological factors play an important role in shaping Entrepreneurial Competence.

Entrepreneurial Motives

Large number of models while measuring performance of an entrepreneur highlight the importance of entrepreneurial motivation as one of the prime important consideration especially in small business set-up (Blawatt, 1995). Some of these models specifically emphasize on the role of objectives that entrepreneur seek to achieve through business ownership. Panda and Panda (2005) emphasized on entrepreneurial motives based upon the premise that this will bring an insight to understand the behavioral patterns of the entrepreneurs, and the impact of these pattern on their business performance.

David McClelland was one of the pioneering and most influential researcher in this domain. McClelland's (1961) studies showed that the entrepreneurial individual was characterized by high levels of achievement motivation, n-Ach for short.

In a review of the research literature, it was found that there are sizable number of measures for this and they all revolve around few selected classification of entrepreneurial motives. In spite of number and differential nature of this measurement with added sophistication due to readily available literature, the aggregate research evidence remains inconclusive about the nature of the motives as well as its influence on entrepreneurship (Trivedi et al. 2011). Despite of this fact, the present research includes entrepreneurial motives or entrepreneurial stimuli to find-out its effect on entrepreneurial performance. When studying the literature, we can conclude that there are two main reason/stimuli because of which the entrepreneurs are starting a venture. These are compelling factors and facilitative factors.

Gilad and Levine (1986) also proposed in the same line that there are two types of entrepreneurial motive, i.e. push and pull. Large number of times, it is negative events in life like lack of job satisfaction, layoff, unemployment etc. that results into entrepreneurship. On other hand, the 'Pull theory' implies that a person starts a business because of various intrinsic reasons like need for autonomy, self-fulfillment, creation of wealth etc. Of the two, large number of researchers have found pull factors to be stronger influencer that lead to entrepreneurship success instead of push factors (Keeble et al., 1992).

Considering this, the study posits that:

Entrepreneurial motives work as stimuli to an entrepreneur to create an enterprise and the effect of these stimuli depends on the competence of an entrepreneur

Entrepreneurial environment

An entrepreneurial environment are a set of external factors that has an enduring impact on the behaviour and success of an entrepreneur (Gnyawali and Fogel, 1994).

External environmental factors plays a key role in generating those market anomalies or imperfection that results into generation of entrepreneurial opportunity (Stevenson and Jarillo, 1990).

For this reason, it is considered that the environmental factors do affect the enterprise starting from inception to growth to transformation stage (Please refer Figure 1). In a broader sense, environment encompasses a broader set of factors including legal, social, cultural, technological, political etc.. These factors enhance or undermine an individual's ability and inclination to start the business.

In the background of the above factor, the study posits that:

Entrepreneurial environment plays a critical role in creation and growth of a firm.

Growth of an enterprise

Growth of an enterprise in terms of market share and increasing profit are natural goal for any enterprise (Trivedi et al. 2009). Different factors contributing to the business growth ranging from positive external environment to entrepreneurial effectiveness have been identified by past researchers. Moreover, there is numerous ways to define and measure growth, and the results may, sometimes dramatically vary accordingly. The approaches to define growth can be divided into four parts (Gibb and Devies, 1992): a) Personality Dominated Approaches, which tries to find the link between the personality characteristics and it's relation with firm growth; b) **Organisation Development Approaches**, which seeks seeking the characterize the way the small organization develops and influence and is influenced by the owner-manager; c) Business Management Approaches, broadly embraced under the term 'business' which focus upon the importance of business skills and the role of functional management, planning, control and formal strategic orientations; and d) Sectoral and Broader Market-led Approaches, which are more macro in scope and which usually, have their academic base in industrial economics.

There are obvious overlaps between these approaches, largely dependent upon the discipline of the researcher. For the purpose of our research study, we shall move forward with the first approach, i.e. Personality Dominated Approach.

In Personality Dominated Approach, the entrepreneur is seen as the key to the growth and progress of an enterprise. There is a growing body of literature that seeks to link the personal characteristics of the entrepreneur with planning, and in turn, with performance of the company. Much of this build upon the behavioural trait and achievement models of McClelland and Atkinson (Atkinson and Feather, 1969). However, there are very mixed results from attempts to link high scores on behavioural traits associated with performance (Brockhaus, 1982).

Regarding measuring growth, we have to make clear distinction between qualitative and quantitative parameters for company growth (Crinjs, 1972). Quantitative growth can be characterized by company size, turnover, profitability, number of employees and the value of the company. Qualitative growth, on other hand, is linked with the

quantitative objectives, not as an aim in itself but as strategic means for the realization of the growth of the enterprise. The companies' competitive position, product quality and customer services are examples of qualitative objectives (Clercq et al. 2006). Looking at high reliance of qualitative parameter measurement on quantitative ones and complexity of calculation, the most common method of computing growth is quantitative ones.

In Quantitative one, the most common method of computing a growth index is to compute a ratio of the change in sales turnover over a period of time.⁷⁴ However, complete reliance on sales turnover is highly risky, because it can also be due to inflation, temporary shortage of supply or excesses of demand in the market and so on. So, the other possible indicators of growth such as return on investment, profits, number of employees, number of products and services etc. are examined. Needless to say that each of these has its own limitation as a growth index. For e.g. Profit may increase because of windfall gain, rather than entrepreneurial competence.

Moreover, normally it is observed that entrepreneurs are reluctant to reveal their financial growth data in amount format because of business secrecy and other purpose. So it is considered appropriate to compute a 'Combined Growth Index',⁷⁵ based on the percentage changes in the Average Growth of 7 indicators over last five years of enterprise. The potential indicators are: number of products and/or services, number of employees, sales turnover, number of customers, total market share etc.

With this, study posits that:

Growth of an enterprise is the function of its entrepreneur's competencies

3. CONCLUSION

One of the central questions in the study of entrepreneurship is always concerned with why some new ventures succeed and others do not. It is believed that if we can achieve a better understanding of what influence new venture performance, this will have implications for prospective entrepreneurs, as well as their advisors and investors to achieve greater return (Cooper and Gascon, 1992). But till date, as argued by a number of authors, the efforts to arrive at theory of entrepreneurial success, despite considerable work in field, have not produced desired results (Wortman, 1987). Inability of entrepreneurial scholars to arrive at distinct theory of entrepreneurial success is attributed to host of factors that include disagreement on definition of entrepreneurship (Bygrave and Hofer, 1991), inability of scholars to look beyond their discipline (Ronstadt et al., 1986), inability to apply multilevel analysis and new constructs (Phan, 2004), measurement of constructs developed (Brush et al. 1992), lack of dynamism in theories (Bygrave and Hofer, 1991) and to some extent, lack of parsimony in using constructs for developing theories (Phan, 2004).

Therefore, it is believed that if a distinct theory of entrepreneurship success is to be developed then it has to pay multi-level attention to interactions among a host of variables. Moreover, analysis at each level should be connected in such a way so that we can have a bigger picture made up of small dots.

It has also been observed that there is a considerable attention being devoted in isolation to the characteristics and competence of entrepreneurs, their background factors like age, experience, education etc, their growth and success factors and so on. But till date, a broader frame work which consider entrepreneurship as a process and empirically proves the relationship between numbers of associated variables of the process is not recognised in the world of research.

This has resulted into the development of 'Entrepreneurial B-C-G Process Model' as mentioned before. The researcher agrees with Schein (1978) that the performance of a business founder is measured by the performance of enterprise established by him⁹. But again this is influenced by a number of environmental factors in which enterprise perform and variables which formed entrepreneur as what he is. Thus, a better understanding of the relationship of the founder's role to firm performance requires research and theory development at three levels of analysis: Individual, organisational and environmental. The 'Entrepreneurial B-C-G Process Model' is a humble attempt of in this direction.

As mentioned above, there are the five pillars, which contribute to develop the model. Having examined these five pillars, the following features of the model become apparent:

1. The model is consistent with the view that behaviour is a function of person-situational interaction.
2. As one moves from left to left to right of the model, borrowing from the terminology of Kanfer (1992), there is a transition from more distal constructs to proximal ones in explaining entrepreneurial behaviour. For example, the background factors may exert an influence on growth of an enterprise through their impact on the entrepreneur competence
3. Low and Macmillan suggest the two main theoretical pillars to guide the researchers in the entrepreneurial paradigm – the strategic adaptation perspective and the population ecology perspective (Low and MacMillan, 1988). The present model is consistent with the basic assumptions of both the perspective.

In sum, the conceptual model presented here can be used as a lens, through which, the researcher views the complete process of entrepreneurship. The model treats the entrepreneur behaviour, measured with competence model, as outcome variable and acknowledges the fact that there could be significant variation in the same because of background of an entrepreneur. Secondly, the entrepreneurial competence is considered as the driving force determining the growth of an enterprise. Finally, due care has been taken to define the concept precisely in order to make it measurable with the intention to ground the research and the same can be used for the purpose of further empirical research.

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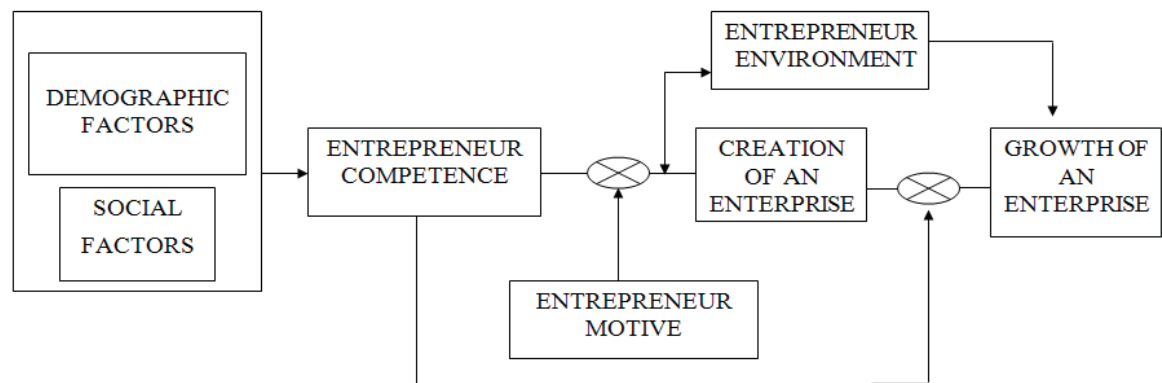
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Figure 1

Entrepreneurial B-C-G Process Model

BACKGROUND FACTOR



Management III

Room 608 13:15-14:45, March 17

Session Chair: Dr. Tatiana A. Garanina

299

Disclosure of Intellectual Capital in IPO prospectuses: evidence from technology companies listed on NASDAQ

Tatiana A. Garanina | *St. Petersburg University*

Alexandra S. Manuilova | *St. Petersburg University*

192

A Comparison of Lean Six Sigma Implementation and Sustainment in Two Hospital Settings: How Does Leadership Matter?

Todd Sperl | *Lean Fox Solutions*

Mark S. Teachout | *Univeristy of the Incarnate Word*

260

The CRM Performance Measurement in Supply Chain: Analytical Hierarchy Process Approach

Chakthong Thongchattu | *The University of Phayao*

Sutasinee Siripokapirom | *Thepsatri Rajabhat University*

Thatchavong Julawat | *Thepsatri Rajabhat University*

Monwaros Suthananun | *Lopburi Cancer Hospital*

389

A Study on Relationship among Teacher's Work Stress and Teaching Efficacy of the Private Senior High School Teachers in Taiwan and Malaysia

Yuh-Quan Lim | *Yuan Ze Unviersity*

Sy-Ming Guu | *Chang Gung University*

Jing-Jing Weng | *Yuan Ze Unviersity*

301

Buildability and Maintainability in Final Account Closing: The Greatest Challenge for Construction Industry

Zarabizan Zakaria | *University of Technology Malaysia*

Syuhaida Ismail | *University of Technology Malaysia*

Aminah Md Yusof | *University of Technology Malaysia*

232

How Brand Community Effect Purchase Intention Take H.O.G and Taiwan BMW Motorrads Owner's Club for Examples

Lin, Bo-Chih | *Yuan Ze university*

229

The Effects of Team members' Traditionalism-Modernity on Distribution Decision Rules: Investigating the Team Situational Effects

Yi-Shan, Liao | *Yuan Ze University*

226

The Impact between User Privacy Management and the System Using on Social Networking Sites, Emphasize on the Information Convenience and Establish A Safety User Privacy Mechanism- Take Facebook as an Example

Yu I-Chin | *Yuan Ze Univiersity*

Disclosure of Intellectual Capital in IPO prospectuses: evidence from technology companies listed on NASDAQ

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ABSTRACT

The goal of the paper is to define the relationship between the disclosure of information on Intellectual Capital and the 500-day post-issue stock performance on example of NASDAQ companies;

The main objectives are to create a regression model with Intellectual Capital elements that will best possibly reflect the connection between Intellectual Capital disclosure and post-issue stock performance, to compare the results with other similar studies and to interpret the differences.

The main results are:

- Intellectual Capital disclosure has a positive effect on post-issue stock performance;
- The influence of Intellectual Capital disclosure is higher for non-manufacturing firms, small companies and firms that issue American Depositary Shares.

Keywords: Intellectual Capital, initial public offering (IPO), Intellectual Capital (information) disclosure, NASDAQ, technology companies, IPO prospectus

1. INTRODUCTION

For decades the researches are trying to understand what are the main factors influencing the stock of the price and its movement. Academics have debated the relevance of accounting information for valuing firms. Most of the studies show a low earnings-return association (Amir, Lev, 1996) and a lowering association between stock prices, earnings and book values (Brown, et al., 1999; Core, et al., 2003; Ely, Waymire, 1999a; Lev, et al., 1999).

The higher is the awareness among investors about the importance of Intellectual Capital, the more they request the disclosure of such information. As a result, managers started to provide information related to Intellectual Capital voluntarily, seeking for lower average cost of capital, more accurate analyst forecasts, higher liquidity in capital markets and credibility among investors (García-Meca, et al., 2005).

While many researchers dedicate their time to the problem of Intellectual Capital transparency and the factors that influence the decision of the company to disclose such information, very limited attention is paid to the consequences of Intellectual Capital disclosure. This work addresses this issue by examining the connection between the Intellectual Capital disclosure in the initial public offering (IPO) prospectuses and

post-issue stock performance.

The goal of the research is to define the relationship between the disclosure of information on Intellectual Capital and the 500-day post-issue stock performance on example of NASDAQ companies.

The objectives are the following:

- Conduct a literature review on Intellectual Capital disclosure;
- Develop the model with factors influencing post-issue stock-performance (excluding financial KPIs);
- Compare and interpret the results with existing research on Singapore Stock Exchange;

To be able to compare the results with similar research conducted on another market (Singapore Stock Exchange) alike research methodology is chosen. To measure the level of disclosure of Intellectual Capital, Disclosure Index is used. Post-issue stock-performance is calculated as buy-and-hold return for 500 days after listing. The sample consists of the technology companies (according to NASDAQ) that were listed on NASDAQ from 2002 to 2010.

2. Reasons for Intellectual Capital information disclosure

Research on Intellectual Capital disclosure has witnessed a significant growth in the past two decades (García-Meca, et al., 2005). Stages of Intellectual Capital development, IC application to business and management issues and the application of IC research in different cultural contexts are traced in Tan (Tan, et al., 2008). Most of the studies are dedicated to a specific country, for example Australia (Guthrie, et al., 2000), Canada (Bontis, 2003), India (Kamath, 2008)(Kamath, 2007), Japan (Mavridis, 2004), Malaysia (Goh, et al.), Singapore (Tan, et al., 2007), Spain (Oliveras, et al., 2008), Taiwan (Chen, et al., 2005), UK (Williams, 2001). These studies give an overview of Intellectual Capital reporting in different countries across sectors.

When disclosing the information on Intellectual Capital to the market the company achieves two goals: reducing information asymmetry amongst market actors and attaining market valuations that better reflect the risk profile of the firm (Dumay, et al., 2007).

The empirical evidence also supports the advantages of the reporting of Intellectual Capital to external stakeholders. For example, the number of companies who are now reporting their Intellectual Capital increases and the frameworks for doing so are developing further (Edvinsson, 1997); (Meritum, 2002); (Mouritsen, 2002); (Mouritsen, et al., 2003).

Below there is a summary of main factors influencing the company's decision on whether to disclose the IC information or not:

Graph 1 Factors influencing the disclosure of Intellectual Capital



Nevertheless, it is important to take into account that when a company voluntarily discloses information on Intellectual Capital, its ambiguous and tacit nature causes problems with how to assess the reliability, objectivity and value relevance of the information disclosed and reported. According to other researchers, quantitative disclosure is understood to be a proxy of the quality of information, since numbers demonstrate reliability and function almost as a guarantee of facts; on the other hand qualitative disclosures are “soft” information leaving a great deal of flexibility in their content (García-Meca, et al., 2005).

It was shown by Penã, 2002 that companies that have done an effort to manage and develop their Intellectual Capital demonstrate higher returns and effectiveness. The Intellectual Capital of a company is also taken as a critical factor and the reason for the development of a sustainable competitive advantage.

The need for evaluating the relevance of IC for evaluation of equity in capital markets has been claimed since more than a decade by policy makers and supporters of Intellectual Capital research (Meritum, 2002).

Studies show that financial analysts pay attention to Intellectual Capital information to some extent compensate themselves for the Intellectual Capital-related information deficit of financial reports (Amir, et al., 2003) especially in non-manufacturing industries. Though, on average, financial market specialists base their judgments on limited information - based mainly on financial performance and tangible assets – with level of disclosure on intangible assets quite low (Lev, 1999).

However this creates a potential problem in forecasting – the easily available financial information does not provide a feeling of what intellectual is all about: about future prospects, future growth and potential. When the economy moves to an increased reliance on intangible assets, the use and recognition of these assets becomes very important for the study. The research has identified the effects of Intellectual Capital on company/ stock performance (mainly R&D expenses or R&D intensity) in the context of capital markets. For instance, Lev and Sougiannis (Lev, et al., 1996) write about a significant inter-temporal association between company’s research and development capital and subsequent stock returns. Aboody and Lev (Aboody, et al., 1998) examined the

performance of listed chemical companies from 1980-1999 and show that a dollar invested in chemical R&D increases, on average, current and future operating income by \$2. Translated to annual rate of return on investment, the after-tax rate of return on investments in R&D in chemical industry is about 17%, indicating a very significant contribution of chemical R&D to corporate value (typical weighted-average cost of chemical R&D is 8-10 percent). Thus, in stock performance, chemical companies collectively outpaced the S&P 500 companies during 1985-1998 (Ghosh, et al., 2007).

3. Literature gap. Hypothesis formulation

There is quite a number of literature, concerning Intellectual Capital itself, research on why the company should disclose the information on IC, in which way, who is the target audience and why this information is of interest to participants of stock market. Mainly research covers official annual reporting and separate IC Statements. Much less time and attention was dedicated to IPO prospectuses IC information disclosure and even less to post-issue stock performance in connection to the disclosure.

This paper extends this line of investigation. It follows the existing research conducted by Singh and Van der Zahn in the index chosen and time of observation. Although, while the academics were concentrating on Singapore exchange, the focus of this paper are the IPOs of Technology companies on NASDAQ before and after the crisis 2008. Findings from this study provide a broader, long-term image of the potential consequences of Intellectual Capital disclosure in IPO prospectuses and share price returns of Technology companies, which is of particular interest to investors due to sadly famous events of 2001.

There was no research of this kind conducted before.

In arguing that IC disclosure is diminishing the uncertainty, which always accompanies IPO, the result should be a smaller effect of post-issue price drop. Nevertheless the research conducted by Singh and Van der Zahn shows exactly the opposite. The goal of this paper is to duplicate the research using different sample to check the results as this can become a new trigger for the development of the topic.

The specific research hypothesis, therefore, is formalized as:

H1: The level of IC disclosure in the prospectus of an IPO is inversely associated with the post-issue stock performance.

Additional attention would be paid to pre- and post-crisis results and the fact that the sample consists of Technology companies.

4. Research methodology

In order to conduct the research content analysis (and more specifically Disclosure Index) was employed for evaluating the level of IC disclosure. The regression model of Singh and van der Zahn (Singh, et al., 2009) was modified on the one hand, to include all the major variables in order to be able to compare the results, on the other hand, to take into account special features of the companies that get listed on NASDAQ and SEC regulation.

To assess post-issue stock performance market-adjusted buy-and-hold returns applying a 500 trading-day observation window is used. The following procedures are employed to

measure various buy-and-hold returns. First, the basic raw buy-and-hold return for IPOj (R_j) is computed as:

$$R_{jT} = \prod_{t=1}^T (1 + r_{jt}) - 1 \quad (1)$$

where

T = daily trading day holding period (for main observations 500 days); and

R_{jt} = return on IPO share j during the trading period t inclusive of cash dividends paid during the trading period t. (Singh, et al., 2009)

The average buy-and-hold return for the trading period t (R_t) is computed as:

$$R_t = \frac{1}{N} \sum_{j=1}^N R_{jt} \quad (2)$$

where

N - number of IPOs included in the portfolio.

Consequently, the mean market-adjusted buy-and-hold return (MBHAR) for the daily trading period t (denoted as $MBHAR_T$) is calculated based on the formula:

$$MBHAR_T = \frac{1}{N} \sum_{j=1}^N \left(\prod_{t=1}^T (1 + r_{jt}) - \prod_{t=1}^T (1 + r_{mt}) \right) \quad (3)$$

Where r_{mt} - return on the market portfolio during the trading period t.

MBHAR measures the compounded buy-and-hold returns an investor could earn from a portfolio of IPO stocks held till a given trading day T in excess of the buy-and-hold return the investor could have earned if holding the market portfolio for the same trading day period.

For the multivariate regression analysis the dependent variable proxy denoted $BHAR_j^{500}$ is the 500 trading day compounded market-adjusted buy-and-hold return for IPOj.

Multivariate regression analysis is used as the main statistical test of the study's prime conjecture of a negative association between the extent of Intellectual Capital disclosure in the prospectus and the post-issue stock performance of NASDAQ IPOs. We posit the following regression model to test the primary conjecture:

$$BHAR_j^{500} = \lambda_0 + \lambda_1 ICDisc_j + \lambda_2 Ln\alpha_j + \lambda_3 Und_j + \lambda_4 WCPR_j + \lambda_5 SqrtATV_j + \lambda_6 MOM60_j + \lambda_7 LnUP_j + \lambda_8 FSize_j + \lambda_9 LnGP_j + \lambda_{10} SqrtAge_j + \lambda_{11} ManInd_j + \lambda_{12} Offsh_j + \lambda_{13} Internet_j + \lambda_{14} Intl_j + \varepsilon_j \quad (4)$$

where

$ICDisc_j$	Number of Intellectual Capital items disclosed voluntarily in the prospectus of IPOj divided by the total number of items from the 81-item index relevant to IPOj
$Ln\alpha_j$	α_j is calculated as $\alpha = (N - N_p - N_s) / N$ where N = number of common outstanding of IPOj after listing, N_p = number of primary common outstanding shares offered by IPOj and N_s = number of secondary common outstanding shares offered by IPOj. $Ln\alpha_j$ is then calculated as $Ln\alpha_j = \alpha_j + \ln(1 - \alpha_j)$
Und_j	Indicator variable where IPOj is scored one (1) if it engages either of the top two underwriter firms (based on frequency) in the year of

	listing; otherwise scored zero (0)
<i>WCPR_j</i>	The ratio of proceeds reported in the prospectus of IPO _j that is to be allocated to meet immediate working capital needs following listing to total proceeds to be raised by IPO _j on listing as reported in the prospectus
<i>SqrtATV_j</i>	Square root of the total number of shares traded for IPO _j during the 500 trading day observation window (less the first day of trading) divided by number of days shares in IPO _j actively traded during the 500 trading day observation window
<i>Mom60_j</i>	Mom60 _j = percentage change in the NASDAQ Composite Index 60 days prior to the day of listing for IPO _j and the day of listing for IPO _j
<i>ln UP_j</i>	Natural logarithm of the difference between the closing price on the first day of trading and the initial offering price for firm <i>j</i> , expressed as a percentage of the initial offering price
<i>FSize_j</i>	Natural logarithm of the projected market capitalization of IPO _j on the day of listing derived from the total number of outstanding common shares of the firm on listing multiplied by offer price
<i>ln GP_j</i>	Natural logarithm of the net proceeds (based on prospectus projections) to be received by IPO _j (expressed in USD)
<i>SqrtAge_j</i>	Square root of the number of days from the date of incorporation of IPO _j to the date of listing for IPO _j
<i>ManInd_j</i>	Indicator variable where the IPO _j is scored one (1) if from the manufacturing industry as determined by NASDAQ specifications; other scored zero (0)
<i>Offsh_j</i>	Indicator variable where the IPO _j is scored one (1) if the company is registered in an offshore; other scored zero (0)
<i>Internet_j</i>	Indicator variable where the IPO _j is scored one (1) if the company is doing business via Internet (meaning business model implies that business – sales, providing services, etc. – is done via Internet); other scored zero (0)
<i>Intl_j</i>	Indicator variable where the IPO _j is scored one (1) if the company has operations abroad; other scored zero (0)

Control variables are included in equation (4) to control for cross-sectional variations for such characteristics as:

- firm quality (i.e. ownership retention, underwriter reputation);
- intended use of proceeds (i.e. ratio working capital to total proceeds);
- investor interest post-listing (i.e. level of underpricing, trading volume);
- capital market sentiment (i.e. market momentum 60 days before listing);
- information asymmetry (i.e. firm size); and
- ex-ante uncertainty (i.e. offering size and firm age).

Controls for industry sector influences are also included.

5. Sample

To check the results of (Singh, et al., 2009), sample from another stock exchange was

taken – from NASDAQ Stock Exchange. NASDAQ is famous for being an exchange for technology companies. As there is a lot of discussion going on about technology companies' Intellectual Capital and disclosure of IC by technology companies, not only NASDAQ was chosen, but also the companies that NASDAQ classifies as “Technology companies”.

To determine the timeframe for the sample the following logic was used:

1. As the observation window equals to 500 days the company has to be listed before October 2010 (+500 days=April 2012);
2. Due to time and resources limitations IPOs from the beginning of 2000s were taken
3. To avoid the effects of dot.com bubble, listings after 2002 were taken
4. The recent crisis of 2008 should be taken into account (officially the crisis continued from December 2007 to June 2009). All the IPOs are divided into 3 groups: those that were listed before, after and during the crisis (with consideration of 500-day observation window):
 - Companies listed before the crisis – listing before August 2006
 - Companies listed during the crisis – listing from Dec 2007 to February 2008
 - Companies listed after crisis – listing from July 2009 to October 2010

Taking all those constraints into account we got the list of companies consisting out of 65 technology firms.

Table 2 presents descriptive statistics for the sample.

Table 2 Description of the sample

	2002	2003	2004	2005	2006	2007	2009	2010
Number of companies	4	3	12	12	4	3	4	23
% of manufacturing companies	25,0%	0,0%	41,7%	41,7%	25,0%	33,3%	50,0%	21,7%
% of ADS	25,0%	0,0%	33,3%	41,7%	25,0%	0,0%	0,0%	39,1%
% of Internet companies	25,0%	33,3%	41,7%	25,0%	25,0%	33,3%	50,0%	56,5%
Average % of IC items disclosed	22%	19%	23%	22%	19%	26%	22%	28%
% of offshore companies	0,0%	0,0%	33,3%	33,0%	25,0%	0,0%	25,0%	30,4%

6. Research description

As mentioned above the Disclosure Index used in the (Singh, et al., 2009) was applied for the research to be able to compare the results on 2 different markets.

Some of the elements of the index were quite disputable. For example, some of the positions were too broad and obscure like “Description of the network of distributors and suppliers” could potentially score 1 just for the information about distributors or could score 1 for the information about both distributors and suppliers. Likewise, the description of the network could mean more or less detailed information – this is the limitation of this approach, this makes it more subjective.

Due to this subjectivity and possibility of different interpretations, there was a set of rules

established for conducting the Disclosure Index (table 3):

Table 3 Rules designed for filling in the Disclosure Index with data

Disclosure Index position	Rules for filling in the element of Disclosure Index
Employee breakdown by nationality	More topical for Asian context, especially Singapore; for NASDAQ breakdown by number of employees in different countries (geographical) taken
Employee breakdown by level of education	In all companies was used only for Researchers – if mentioned for researchers, then the company scores 1
All the elements for IT capital	When the company is the software developer, apriori it has IT systems developed inhouse. Because for some companies this is just one of the businesses and the case is disputable, to avoid subjectivity, every company that invests in IT gets scores for IT capital measures
External sharing of knowledge and information	Software developers and IT systems users who work with open platforms, get 1
Details of future prospects regarding R&D	As the level of detail is not specified, the data on future spending (in USD), direction of future research, expected future results of R&D get scored 1

Below is the list of elements that were not mentioned in any of the 65 prospectuses in the sample:

- Ratio of customers to employees
- Working from home
- Employee breakdown by age
- Employee breakdown by gender
- Employee absenteeism rate
- Comments on absentee rate
- Discussion of employee interviews
- Education and training expenses by number of employees
- Employee expenses by number of employees
- Career opportunities
- Revenues to employee
- Value Added to employee
- Ratio of customers to employees
- Measure of external processes failures
- Discussion on fringe benefits and company social programs

The only element that was mentioned by each company out of the sample is Executive stock-incentive programme (falls under “Remuneration and incentive systems”).

Technology companies are different from all the other companies, because their most valuable assets are intangible, including the research they make, software they develop etc. Therefore Human Capital is of extreme importance for such companies –

stock-incentive programme is a way for them to make sure the key personnel does not move to competitors because of the higher salary.

7. Research results

In the section below main results of the research are presented – concerning Disclosure Index and regression analysis.

In tables 4 the results of analysis of Disclosure Index are presented:

Table 4 Number of Disclosure Index items disclosed

	Year								Overall Average
	2002	2003	2004	2005	2006	2007	2009	2010	
Average for Disclosure Index overall	17,8	15,0	18,0	17,7	15,0	20,3	17,5	21,8	19,0
Average for Human Resource Capital	4,5	3,3	4,8	5,0	3,3	4,7	3,5	5,3	4,7
Average for Customer capital	4,5	4,3	3,9	4,3	3,0	2,7	3,5	4,0	3,9
Average for IT Capital	1,8	1,3	2,0	1,3	1,3	1,0	2,8	2,7	2,0
Average for Processes Capital	0,8	0,0	0,5	0,3	0,5	1,3	0,3	0,7	0,5
Average for R&D capital	3,5	4,0	2,9	3,1	3,3	5,7	3,0	4,3	3,7
Average for Strategic Capital	2,8	2,0	3,8	3,8	3,8	5,0	4,5	5,0	4,2
Number of Companies	4	3	12	12	4	3	4	23	65

The results also showed that there is no linear dependence of the level of disclosure and the year. The level of overall disclosure rises in 2004, 2007 and 2010 and fall in all other years during the observation window.

We also found out that in 2010 on average there was more information disclosed on Intellectual Capital than during all other years (2002-2009). On average, the companies are more ready to present information on Human Recourse capital (6% out of overall average 24%) than on any other type of capital. These results are consistent with what (Singh, et al., 2009) found during their study on Singapore Stock Exchange. Then follow Customer, Strategic and R&D capital with 5%. The last place is occupied by the Processes Capital.

It is interesting to note that since 2002 to 2010 the level of disclosure on Strategic Capital disclosure doubled. It reached this level in 2007 and remains 6% since that time. There was a drop in disclosure level in the pre-crisis year 2007 for Customer ad IT Capital, but the growth for 3 other types of capital. Interestingly enough the least disclosed type of Capital – Processes Capital was best presented in 2007 – could be related to the growing risks for investors in anticipation of the crisis and an attempt to reassure them in company's reliability.

In table 5 the results of the regression analysis are presented.

Table 5 Statistical results of regression analysis in Excel

Regression Statistics					
Multiple R	0,732184				
R Square	0,535687				
Adjusted R Square	0,282				
Standard Error	1,01521				
Observations	65				
ANOVA					
	df	SS	MS	F	Significance F
Regression	14	47,67068	2,073049	2,036575	0,02633611
Residual	50	41,22647	1,031689		
Total	64	88,96515			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-0,734	1,416	-0,518	0,607	-3,579	2,111	-3,579	2,111
Disclosure Working capital	0,052	0,030	1,722	0,033	-0,009	0,112	-0,009	0,112
Ln alpha	0,139	0,584	0,237	0,813	-1,034	1,311	-1,034	1,311
SqrtAge	0,232	0,466	0,498	0,621	-0,703	1,167	-0,703	1,167
LnUP	0,000	0,008	-0,012	0,990	-0,015	0,015	-0,015	0,015
FSize*LnGP	0,123	0,108	1,141	0,259	-0,093	0,339	-0,093	0,339
MOM60	-0,001	0,004	-0,229	0,820	-0,009	0,007	-0,009	0,007
ManInd	4,013	2,232	1,797	0,078	-0,472	8,497	-0,472	8,497
Underwriter	-0,121	0,409	-0,297	0,768	-0,943	0,700	-0,943	0,700
SqrtATV	0,565	0,342	1,654	0,104	-0,121	1,252	-0,121	1,252
International	0,000	0,000	-2,007	0,050	-0,001	0,000	-0,001	0,000
Offshore	0,562	0,355	1,581	0,120	-0,152	1,276	-0,152	1,276
Internet	-0,081	0,446	-0,183	0,856	-0,977	0,814	-0,977	0,814
ADS	0,124	0,368	0,338	0,737	-0,615	0,864	-0,615	0,864
	0,615	0,452	1,360	0,180	-0,293	1,523	-0,293	1,523

The results of the regression analysis show that the significance of the model equals to 54% - R Squared – 54% of the 500-day returns fluctuations are explained by the factors in the model.

The most significant result is the fact that, in contrast to the research conducted by (Singh, et al., 2009), the Disclosure Index has a positive influence on the 500-day returns, which is an opinion supported by majority of literature.

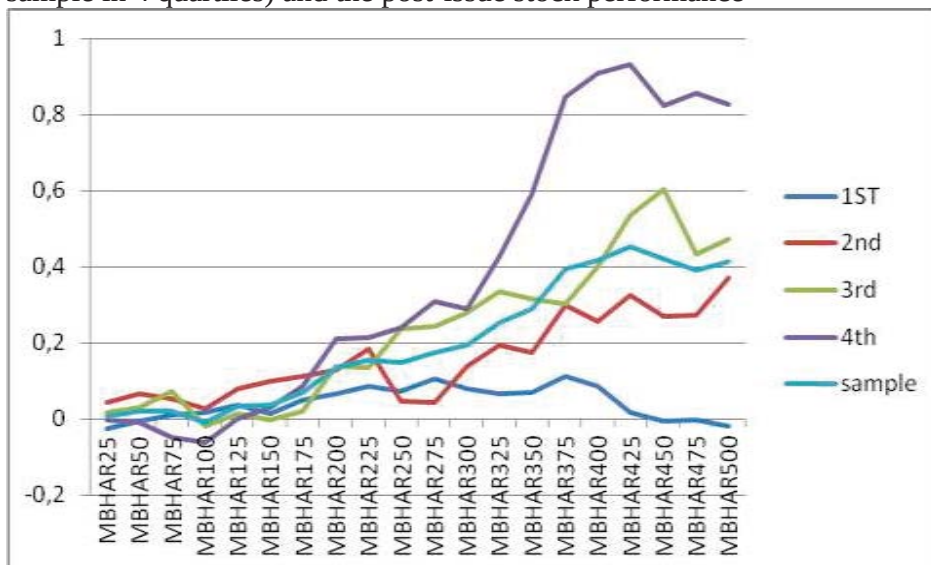
From all the factors included in the model, the significant ones (checked by p-value – should be <0.05 for 5% significance level) are the following:

- Disclosure Index
- Trading Volumes
- Momentum of the market (with 10% significance level)

The importance of trading volumes and its direct relation to the post-issue stock performance could be explained by its influence on the liquidity of the stock. Normally liquid stocks are less vulnerable to market sentiments than the ones which investors are not always sure how to sell fast and without significant losses.

The findings suggest a consistent positive association between the level of Intellectual Capital disclosure in IPO prospectuses and market-adjusted buy-and-hold returns. The highest return show the 4th quartile companies – companies that disclosed most information on Intellectual Capital and lowest return after 500 days showed the companies with lowest level of IC information disclosure. This result confirms the findings of the model that Intellectual Capital disclosure has a positive effect on the post-issue stock performance. It is interesting though that this effect becomes visible (obvious) after 175 days – before this period the 4th quartile shows worse results than other companies and overall sample.

Graph 2 Graphical representation of interrelation between IC disclosure (with division of sample in 4 quartiles) and the post-issue stock performance



The results of regression analysis as such and comparison of the buy-and-hold returns and level of disclosure are opposite from the ones in (Singh, et al., 2009), which was based on the Singapore market data.

8. Suggestions for future research

The analysis of literature on the topic of Intellectual Capital in general and its disclosure in particular showed the following gaps in current research:

- Intellectual Capital disclosure in developing countries

There were some studies conducted in Malaysia (Goh, et al.), Sri Lanka (Abeysekera, et al., 2005) and India (Kamath, 2008), but, for example, nearly no research on the topic in China.

It could be also valuable to understand whether the relation between disclosure practices and political situation (in different aspects) exists – is it that only political system has an influence on the Intellectual Capital disclosure or also visa versa – higher level of transparency affects the government and legislation?

- What are the current, and potential, effects of disclosing Intellectual Capital? Does it have an influence on productivity? Improves efficiency? Enhances corporate spirit? Establishes a more relevant corporate identity?
- Does generating information on Intellectual Capital and disclosing it make sense from a cost/benefit perspective?
- Within an organization, who is best positioned to measure and manage Intellectual Capital? Should it be a function of the Finance Department?
- Where should IC information be presented? (Annual report? Press release/ promotional material?)
- How to prevent the existing incentives of the company to abuse the usage of IC information disclosure?
- Is information on Intellectual Capital transparent, robust, reliable, and verifiable enough (i.e. auditable and suited to inclusion in external reports)?

In relation to the study itself, the following additional questions/ topics could be discussed:

- Is there a relation between types of IC information disclosed (Human Capital, customer etc.) in IPO prospectus and post-issue performance?
- The Disclosure Index could be also used for analyzing annual reports of the company – if the same sample taken – do the companies continue practices of IC disclosure in annual reports? To what extent?
- Disclosure Index could be modified to include the deeper description of each parameter in the model – (not just if yes 1; if no-0, rather 0, when not disclosed, 1 – when mentioned, 2 – fully disclosed);
- Duplication of the same research on other markets or also on NASDAQ but with bigger sample (also other industries included) could bring more interesting insights and make the reliability of the results higher.

9. Conclusions

Conducted literature overview provides the confidence in topicality of the issue of Intellectual Capital disclosure. However not many studies are dedicated to practical influence of such disclosure, therefore this study is a valuable work for future researches. In addition to that, not much attention is paid to IC disclosure in IPO prospectuses.

The initial hypothesis of the work stated that there is an inverse relation between the level of Intellectual Capital disclosure in IPO prospectus and 500-day post-issue stock performance. This hypothesis proved to be wrong – the relation is positive. That means that the more the company discloses information on Intellectual Capital, the better is the 500-day post-issue stock performance – and this is main managerial application of the

work – the opportunity for the company to manage the post-issue performance of its stock.

In addition to that, the following results were obtained by dividing the sample in groups, according to different characteristics:

- For small companies it is important to have a most popular (for the year of listing) underwriter;
- For small size firm there is a positive relation between the fact that the company is manufacturing and its post-issue stock;
- The higher the level of net proceeds for small companies, the better the post-issue stock performance of the stock after listing;
- For the recently (after crisis) listed companies significant factors are: Disclosure Index (positive relation), the company is an offshore company or not (positive effect for the offshore companies) and the firm is an Internet firm or a conventional one (negative relation, meaning better results for conventional, not Internet companies);
- For new established companies the level of IC disclosure is more important than for long existing companies;
- For non-manufacturing companies there are several significant factors: disclosure of Intellectual Capital information (positive effect on post-issue stock performance), the difference between the closing price of the first day of trading and the initial offering price (positive relation), the average trading volume for the newly listed stock (negative relation);
- For foreign companies that issue American Depositary Shares on NASDAQ disclosure of IC information plays a significant positive role for the stock post-issue performance;
- For Internet companies its post-issue stock performance is positively correlated with the difference of the first day closing price, is very much (positive relation) affected by the sentiment of the market 60 days prior to listing and by the trading volumes during first 500 days of listing (negative relation). It is a positive sign for investors when Internet company has international operations;
- For offshore companies disclosure of information on IC is important, as well as a momentum of the market.

The main result of the research is different from the one obtained by Singh and van der Zahn (Singh, et al., 2009) on Singapore Stock Exchange. Most probably this results from specifics of the markets and regulation. Further research in this field and tests on other markets are needed to be able to give a certain answer.

The model also showed that Intellectual Capital doesn't explain fully (can't predict to the full extent) the behavior of the stock after listing (tested for the period of 500 days) – for better analysis financial indicators should be also used. However, the results confirm once again the importance of the disclosure of Intellectual Capital information and its disclosure.

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**A Comparison of Lean Six Sigma Implementation and Sustainment in
Two Hospital Settings:
How Does Leadership Matter?**

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The Continuous Improvement philosophy has evolved over the last 50 years, to include work on Statistical Process Control, Six Sigma, Total Quality Management and Lean. Each of these approaches share the common goal of improving the efficiency of processes in organizations. For example, Lean includes a variety of tools and techniques intended to streamline process work through the elimination of waste and standardization of work. The purpose of this paper is to describe the implementation of Lean Six Sigma in a hospital system, specifically intended to reduce throughput time in emergency rooms. Data on emergency room throughput time were collected, from the time a patient arrived at the door to the time they arrived in an inpatient bed. Data collected over a four-year timeframe indicated that in one hospital that embraced the Lean approach, throughput hours (i.e., door to inpatient bed) decreased while volume increased. In a second hospital that did not embrace the Lean approach, throughput hours increased while volume increased. A retrospective examination of each hospital identified key leadership behaviors that differentiated them. These included communication, leadership style (participative vs. directive), alignment between levels of management, and adoption of a continuous learning philosophy. Given the vital role of leaders in the implementation and long-term sustainment of interventions, this paper highlights how leaders must change in order to achieve and sustain long-term change.

The CRM Performance Measurement in Supply Chain :Analytical Hierarchy Process Approach

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ABSTRACT

Presently, supply chain management is very important for the global competition. Effective supply chain may be defined as the integration of significant key business process from customers through suppliers by minimizing operation costs and maximizing customer satisfactions related within and between all parties. This research proposes the Customer Relationship Management (CRM) performance measurement model that is one of major perspective in supply chain by using an Analytical Hierarchy Process (AHP) technique. The evaluation numerical was illustrated for quantitative significant customer relationship criteria.

Keywords: Customer Relationship Management, Supply Chain, Analytical Hierarchy Process

1 INTRODUCTION

The concept of supply chain performance measurement is approach to measure the performance all activity in the chain which can help stimulate continuous improvements; this was achieved by linking performance measures to specific improvement efforts and helping to drive performance towards critical strategic objectives and improving the efficiency of all operations from original suppliers through the customer with the win-win strategies to create the benefit and value added through the chain. Performance measurement is defined as the process of quantifying effectiveness and efficiency of action (Neely, Gregory and Platts, 1995). Effectiveness is the extent to which a customer's requirements are met and efficiency measures how economically a firm's resources are utilized when providing a pre-specified level of customer satisfaction. Performance measurement systems are described as the overall set of metrics used to quantify both the efficiency and effectiveness of action.

Gunasekaran, Patel and McGaughey (2004) illustrate and discuss different performance measures and metrics of the supply chain management with the help of a framework that

gives cohesive picture to address what needs to be measured, and how it can be dealt with. The metrics discussed in this framework are classified into strategic, tactical and operational levels of management. The metrics are also divided into financial and non-financial so that a suitable costing method based on activity analysis can be applied. Korpela, Lehmusvaara and Tuominen (2001) propose an integrated decision model by Analytic Hierarchy Process (AHP) and Mixed Integer Programming (MIP), included in the traditional cost-based design of the supply chain based on customer service requirements. Robb, Xie and Arthanari (2008) proposes a connections relative importance model exploring operations practice and performance of supply chain by using a structural equation model in case of China furniture manufacturers. Another key finding is that supply chain practices are related to the importance placed on numerous magnitudes the strongest relationship being between firm and customer, thus Customer Relationship Management (CRM) realized to be a key to obtaining competitive advantage in business. CRM was adapted in modern supply chain because it is thought to provide the following advantages such as developed new product and service by customer focus, decrease in overall costs and increase profitability.

In addition CRM refers to the methodologies that assist the businesses direct customer relationships in an organized way to improve customer satisfaction and provide the highest level of customer service. It helps to identify and target their best customers, generate quality sales, plan and implement marketing campaigns with clear goals and objectives. Thus, the customer relationship is the significant supply chain strategy in an aggressive business scenario.

2 LITERATURE REVIEW

2.1 Customer Relationship Management in Supply Chain

Many customers usually addressed the important of service and response from business in order to compare the attractive points of each company before making any decision. The criteria of choosing the deal were stated by the customer such as quality of product, price, lead time, customer service, technical support and warranty, etc. Choy, Lee and Lo (2003) propose an intelligent customer-supplier relationship management system (ISRMS) by using the case based reasoning (CBR) technique to select potential suppliers in CRM module such as Delivery, Shipment quality, Development, Quality and Organization culture. A customer relationship management scorecard was present by H. Kim and Y. Kim (2009). This technique used for diagnose and assess a firm's CRM practice by construct a theoretical causal map with literature review and in-depth interviews with practitioners to extract a hierarchical map from industrial perspectives. The factor evaluation approach by AHP which a customer perspective in Customer royalty (RFM), Customer satisfaction (Satisfied customer ratio) and Customer value (Level of customer complaints). Chalmeta (2006) describes a formal methodology for directing the process of developing and implementing a CRM that considers and integrates various aspects, such as defining a customer strategy, re-engineering customer-oriented business processes human resources management, the computer system, management of change and continuous improvement. Richards and Jones (2008) identifies a core group of expected CRM benefits and examines their ability to increase a firm's value equity, brand equity and relationship equity which are components of

customer equity by Literature review. The propose CRM value driver are: target profitable customers, integrated offerings across channels, improved sales force efficiency and effectiveness, improved pricing, customized products and services, improved customer service efficiency and effectiveness and individualized marketing communications.

2.2 Analytical Hierarchy Process (AHP)

AHP is the process which applies the “Hierarchical measurement” in making effective decisions and provides accurate decision which matched the purpose of the decision making. It was invented by Professor Thomas Saaty of the Pensilvania University in 1970. AHP was developed for prioritizing alternatives of the selection when multiple criteria were used. This method allows the decision maker to structure complex problems, which involve a number of conflict criteria, in the form of hierarchy or a set of integrated levels (Yahya and Kingsman, 1999). Generally, the hierarchy has at least three levels which are the goal, the criteria, and the alternatives. For the customer relationship strategy evaluation, the goal is to select the optimum customer relationship strategy by considering the criteria which can be level of customer perceived value of product, Information carrying cost, range of products and services, responsiveness to urgent deliveries, Flexibility of service system to meet customer needs etc. Gunasekaran et al. (2004). According to find a weight score of customer relationship strategy, the AHP model, applied with the Saaty’s 1-9 scale as shown in table 1, is weighted the criteria by using Pair-wise comparison.

Table 1: The Saaty Rating Scale

Intensity of importance	Definition
1	Equal importance
2	Weak
3	Moderate importance
4	Moderate plus
5	Strong importance
6	Strong plus
7	Very strong or demonstrated importance
8	Very, very strong
9	Extreme importance

The analytical hierarchy process basic steps involved in this methodology are as follow (Vaidya and Kumar, 2006);

- State the problem, consider all performers, objectives and its outcome and identify the criteria that influence the behavior.
- Construct the problem in a hierarchy of different levels constituting goal, criteria, sub-criteria and alternatives.
- Compare each element in the corresponding level and calibrate them on the numerical scale.
- Perform calculations to find the maximum Eigen value, consistency index (CI), consistency ratio (CR), and normalized values for each criteria/alternative.
- If the maximum Eigen value, CI, and CR are satisfactory then decision is

taken based on the normalized values; else the procedure is repeated till these values lie in a desired range.

3 CRM PERFORMANCE MEASUREMENT PROPOSE MODEL

The framework from Gunasekaran et al. (2004) and Bhagwat and Sharma (2007), was construct in 3 level (strategic, tactical and operation) contribute to implement in the supply chain perspective both horizontal (functional work or firm department) and vertical (layer of management command, top-down). This concept help firm to be clear and effectively to approach the business goal in the chaotic stage as follows;

Strategic level focuses on:

- Level of customer perceived value of product.
- Information carrying cost.
- Range of products and services.
- Flexibility of service system to meet customer needs.
- Responsiveness to urgent deliveries.

Tactical level focuses on:

- Customer query time.
- Order entry methods.
- Human resource productivity.
- Quality of delivery documentation.
- Buyer partnership level.

Operational level focuses on:

- Human resource productivity.
- Human resource productivity index.
- Achievement of defect free deliveries.

In this research, CRM Performance Measurement model in supply chain construct from Gunasekaran et al. (2004) and literature review by considered four strategy criteria and its sub-criteria (tactical level) which can be applied to employ in the existent business. The hierarchy structure of propose model was shown in figure 1. The CRM performance rating score was evaluated by the specialist and top management in health care organization and service business, the result of pair-wise comparison for CRM strategy level was presented in table 2.

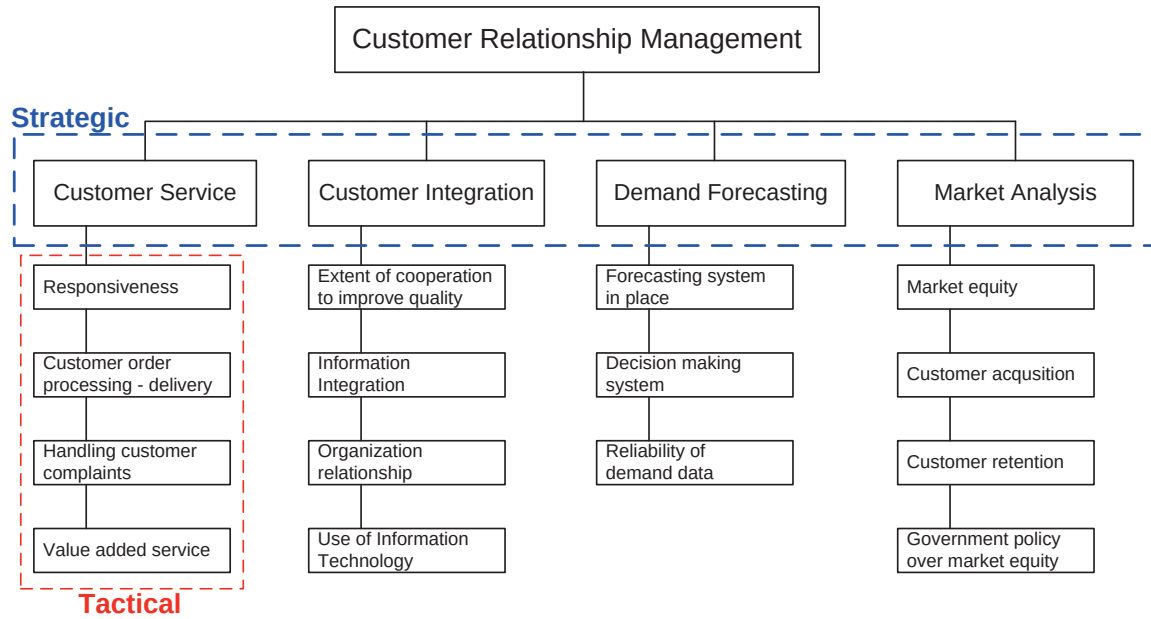


Fig. 1: CRM Performance Hierarchy Structure in Supply Chain

The operation levels of the CRM performance measurement model under the tactical level are described as follows;

- *Responsiveness*: Quality, Innovation and Customer satisfaction.
- *Customer order processing & delivery*: Response time, Order fill rate, Order flexibility, Delivery performance, Handling customer complaints, System in place, Number of complaints received and Number of response made.
- *Value added service*: Flexibility of services to meet particular customer needs and after sales services.
- *Extent of cooperation to improve quality*: New product and service development, Regular operations and Under contingency.
- *Information integration*: Information sharing, Collaborative planning, Joint demand forecasting and standardised means of communication across functions and customers.
- *Organizational relationship*: Designing and maintaining of communication channels, Risk sharing and Common objective teamwork.
- *Use of information technology*: state of art system in place, System's effectiveness and System improvement.
- *Forecasting system in place*: State of art technology, Forecasting model and Forecasting process.
- *Decision-making*: Governance and Fast decision-making.
- *Reliability of demand data*: Accuracy of forecasting techniques, Improve response to customer demands, Decrease prediction errors, Forecast volatility and Increase employee's adaptation for changes.
- *Market equity*: Percentage of market share, Percentage of change and Trend.

- *Customer acquisition*: Percentage of increase and Critical zone.
- *Customer retention*: Percentage of shift and Critical zone.
- *Government policy over market equity*: Subsidy of raw materials, Equal trade opportunity and Knowledge sharing among public and private sector.

Table 2: Pair-wise comparison matrix of CRM Strategy

	CS	CI	DF	MA
CS	1	3 (a)	5 (b)	1
CI	1/3	1	1 (d)	1/3 (c)
DF	5	5 (b)	1	1/3
MA	1/3	1/3	1/5	1

*** CS: Customer Service, CI: Customer Integration, DF: Demand Forecasting, MA: Market Analysis

According to the Pair-wise comparison in table 2, the digit value were indicated as the following; 1 identifies *equal*, 3 identifies *more* and 5 identifies *much more*. If the digit value shows in fraction, it identifies the reverses which are lesser and least as in the examples.

- If compared Customer Service to Customer Integration, it means more important.
- If compared Demand Forecasting to Demand Forecasting, it means much more important
- If compared Customer Integration to Market Analysis, it means much less important
- If compared Customer Integration to Demand Forecasting, it means equal.

After using the Pair-wise comparisons, it can derive the normalized criteria matrix. Determined the Rating Score (weight) of CRM performance measurement was presented in table 3.

Table 3: Normalize matrix of CRM Strategy

	CS	CI	DF	MA	Weight
CS	0.39	0.38	0.50	0.38	0.41
CI	0.13	0.13	0.10	0.13	0.12
DF	0.08	0.13	0.10	0.13	0.11
MA	0.39	0.38	0.30	0.38	0.36

In order to check the reliability of the result applied AHP whether the result was conveyed rationally or randomly, the Consistency Ratio, C.R. value was testified. The C.R. must not exceed 0.10 and if so, that factor will be sifted out and start the test again. The formula indicated is $C.R. = C.I. / R.I.$, $C.I. = (\lambda_{\max} - n) / (n-1)$ and $R.I. = 0.89$ for Pair-wise Matrix of the size 4x4 in the consideration of four criteria. In this case $CR. = 0.012$ it mean the result is reliable by the acceptance bias limit.

4 CONCLUSION

To meet supply chain objectives, the performance of supply chain management is required to measure with respect to some standard parameters. There have been relatively few attempts to systematically collate measures for evaluating the performance of supply chains. Moreover, there is argument over the most appropriate way to categorize them. Studies in recent years indicate that researchers have classified or categorized performance measurement according to several different approaches such as balanced scorecard, components of performance measures, decision making level. This research focus on the valuing customer relationships in supply chain that is critical success factor for new business era, the most important CRM strategy is customer service, the second is market analysis, customer integration and demand forecasting are very close to significant in strategy level. Customer service is the key to building customer satisfaction and confidence in product and service, market analysis can be assist business classified customer segmentation in unruly business and acquire opportunity over the competitions. For the tactical level, we recommend that the performance rating was evaluated by the middle manager or operation manager.

In the real case, business needs to measurement the performance in 360 degree of work because the organization driver all performance indicators together. The first perspective is customer relationship performance, it is the very important because all of valued in the business drive from customer need. The future work of this research, the author provides to construct and extend this concept to scoop all of activity in supply chain along the internal business perspective and supplier perspective.

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A Study on Relationship among Teacher's Work Stress and Teaching Efficacy of the Private Senior High School Teachers in Taiwan and Malaysia.

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ABSTRACT

The purpose of this study is to explore the relation between teacher's stress from teaching and the teaching efficacy in Taiwan and Malaysia and to analyze and compare the difference between these two countries.

The teaching efficacy is influenced by several factors and it can be examined by teacher's teaching brief, the teaching behavior, and the teaching productivity. Nowadays, many schools pay much attention to school promoting and try to get as many students as possible especially for less-attractive private schools. Therefore, in private school, there is a significant difference in students' study level. It may affect teacher's teaching, hence it would gain teacher's stress in teaching. The teaching efficacy plays an important role in students' studies. This study would examine whether it would influence by the stress from teaching.

The methodology of this research is mainly a questionnaire survey. The participants were the teachers teaching in Taiwan and Malaysia private schools who completed the self-reported measures of the Questionnaire on Teacher's Work Stress and the Questionnaire on Teacher's Teaching Efficacy.

Keywords: Teacher's work stress; Teaching Efficacy

Buildability and Maintainability in Final Account Closing: The Greatest Challenge for Construction Industry

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ABSTRACT

Efficient management is essential in any construction project in ensuring each work at site can be carried out according to the schedule. Strong knowledge on the procedures, guidelines and laws involved in construction will give an advantage to the management of the construction players. Hence, effective interpretation and understanding of the contractual obligations will be much dependent on the clarification of the documents in translating the needs and requirements implied as in the agreement. Therefore, the success of construction projects is also supported by the availability of competent and experienced parties involved in the construction industry. Behind the contractor, there are government bodies that act as controllers and observers for the work to ensure that all undertaken construction work complies with the prescribed law. Thus, the aim of this paper is to distinguish between buildability and maintainability of effective management that can assist in achieving the success of final account closing in construction project. In other word, this paper reveals the process of tender bidding and its efficiency in construction process in successfully closing the final account. The outcome of this paper will provide the knowledge to construction player and academicians about the important process in a construction contract to ensure the construction project is successfully delivered to the end users.

Keywords: Buildability, Maintainability, Construction industry, Final account closing

1. INTRODUCTION

The building and construction industry encompasses housing, commercial, and infrastructure development. This sector comprises various fields including architecture, civil engineering, mechanical engineering, electrical engineering, quantity surveying, land surveying, building contracting, and landscaping, among others. Hence, the construction industry plays an important role for growth of the Malaysia economy, which has contributed approximately 2.5 percent of gross domestic product (GDP) in the year 2007. In the Malaysia Master Plan 2006-2015, more than 800,000 job opportunities have been created within these industries. Therefore, based on this achievement, the efforts towards improving construction efficiency in terms of buildability and maintainability would be implemented from time to time in the construction industry.

Dissanayaka and Kumaraswamy (1999) in their study state that time, cost, quality target and stakeholders satisfaction have been identified as the main criteria for the measuring the overall success of construction project, including the final account closing. Based on this statement, cost and time tend to be the most important and visible, always as very critical because of their direct economic implication if they are unnecessarily exceeded.

Hence, Yiu *et al.* (2005) have measured the performance of cost estimators under four stages of a construction project, namely design/planning stage, tender process stage, construction stage and final account stage/defect liability stage. Nonetheless, amongst all the stages, this paper suggests that final account stage contributes to the importance of performance of a construction project and thus is to be dealt with in the final measurement period or defects liability period subject to the provisions of the contract. In addition, Yiu *et al.* (2005) claim that the important issues affecting the project performance at the final account stage are variation order settlement, contractual advice on contract liabilities issues, dispute resolution and special advice, as well as claims negotiation. This gives some ideas to the elements covered by the construction final account by revealing the relationship between buildability and maintainability in assisting the process of final account closing. On the other hand, knowledge of the tender process will also help to achieve the success in the closing of final account in construction project.

1.1 Tendering Process in Construction Industry

In Malaysia, there are different types of contract commonly used between client and contractors such as traditional contracting, negotiated lump-sum contracting for design and build tendering, management contracting and so on. Although the procedure of each contract type is different, the basic documents used are still similar such as specification, details on drawing, summary of tender and conditions of contract.

Traditional tendering is also known as conventional tendering or open tender. Traditional tender can be divided into two concepts, namely in-house or consultant. In-house concept is where the planning, design and tender documents will be prepared and coordinated by the employer. As for consultant concept, it is where the employer will be responsible for the overall project design, building and civil engineering works. Employer will engage consultant and architect to prepare all the drawing and bill of quantities. Invitation of tendering will be opened to the contractor based on the estimated contract price. The tender will be awarded to the contractor who submits a complete set of tender document with the most reasonable price. Open tender is practised to ensure good competition among the contractors and prevent contractors from the practice of cronyism or biasness (Ogunsemi and Aje, 2006), hence is widely applied and practised in public work. The process of traditional tendering is shown in figure 1.

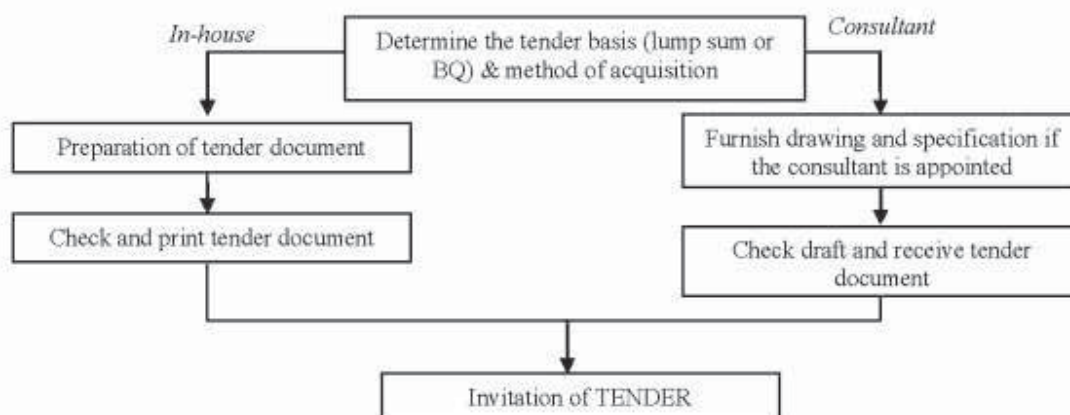


Fig. 1: Process of traditional tendering

Design and build tendering or turnkey is one type of ‘package deal’ where the contractors obtain project financing, procure the land, design and construct and submit to owner after completion of the project. Design and build procurement method may seem to be suitable replacing the traditional approach as it is known to be able to deliver projects in a faster way and require less input from the owner. In design and build tendering, single-point responsibility is carried by contractor (Murdoch and Hughes, 2000). It is normally used in fast-track project, Private Finance Initiatives (PFI) and high profile project. The critical factors which contribute to the design and build project success are project team commitment, followed by contractor’s competencies, risk and liability assessment, client’s competencies and finally project characteristic (Omar, 2005). The process of design and build tendering is shown in figure 2.

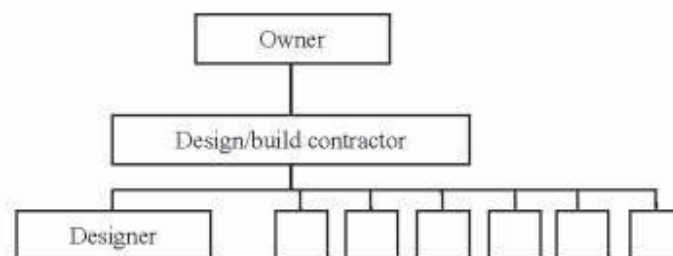


Fig. 2: Process of design and build tendering

1.2 Final Account in Construction Industry

Final accounts for the construction project have been prepared to show the final cost of a project that has been completed by the contractor. Final accounts include the cost of defect liability period, all additions, alternations, deductions resulting from project changes and other related payment as stated in the contract. Final accounts should be prepared immediately after the projects was completed based on the type condition of contract. It also frequently refers to the calculation and agreement of the final construction cost between the employer, contractor and incorporates a fair valuation of the works carried out (Ashworth and Hogg, 2002).

In addition, the project success is measured on the final outcome of the triple constraints in terms of cost, time and quality as well as a process. However, this process which is undertaken to achieve the project objective is frequently neglected (Cheung *et al.*, 2000). Yet,

in construction project, the final contract amount includes all additions, alterations and deductions resulting from the project changes (Baloi and Price, 2003). According pursuant to Baccarini (1999) and Khang and Moe (2008), when all the final closing of financial transaction/dues were completed at the completing phase of a project, such project met the satisfaction of the end users and all key stakeholders (including contractors) indicate that it is successfully achieved. Therefore, the assessment and agreement of this final contract sum, i.e. the final account, is usually of the utmost important to both the client and contractor (Ashworth and Hogg, 2002). Hence, the final account also impacts the success of a project which is supported by Yiu *et al.* (2005) who state that final account contributes to the importance performance of a construction project. Delay in the closing of final accounts may also cause problems to contractor in making working capital and eventually lead to bankruptcy (Zarabizan *et al.* 2012a). The procedure of closing the final account for conventional project is shown in Chart.1.

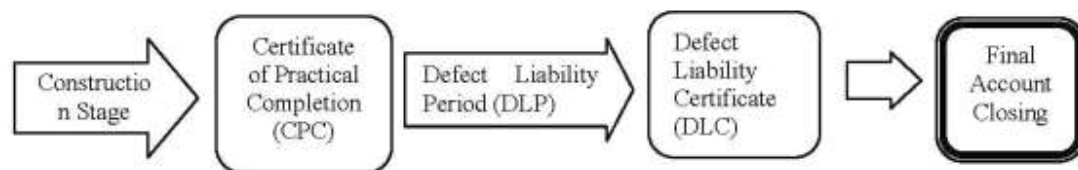


Chart 1: Procedures of closing the final account for conventional project

2. THE BUILDABILITY IN FINAL ACCOUNT CLOSING

Buildability, as “the extent to which the design of a building facilitates ease of construction, subject to the overall requirements for the completed building” is considered to be underprovided for most construction projects (CIRIA, 1983). It is said that clients are dissatisfied with building designs which do not provide value for money in terms of constructability (Low and Abeyegoonasekera, 2001), their new facilities can be difficult to operate and expensive to maintain (Markus, 1997), productivity levels become difficult to raise and there is “incapacity to handle current realities” (Kumaraswamy and Dulaimi, 2001) and that the neglect of buildability is just not sustainable in the long term (Barker, 1998).

On the other hand, Illingworth (1984) defines buildability as “design and detailing which recognize the assembly process in achieving the desired result safely and at least cost to the client”. Ferguson (1989) also defines buildability as “the ability to construct a building efficiently, economically and to agreed quality levels from its constituent materials, components and sub-assemblies”. Griffith (1987) suggests a compromise between consciously making the design more buildable and accommodating the many factors imparting an influence upon design including quality, aesthetics, time and cost.

This also points to the conclusion that the lowest initial cost is not necessarily the most cost effective option or provides the greatest return. It is incumbent on designers, therefore, to incorporate buildability into their designs. To do this, it is obvious that contractors need to be involved in the design phase in order to maximise buildability, as they are aware of the significant variables affecting their ability to complete projects within a given budget and schedule as well as to an acceptable level of quality (Walker and Hampson, 2003; Ling, *et al* 2004). With the traditional system, however, the contractor’s input into the design process is “minimal” and “often nil” (Rowlinson, 1999). With this separation of contractors from the design development stage, therefore, the opportunity to incorporate buildability into the design is largely lost (Masterman, 1992; Walker and Hampson, 2003) and clients cannot

receive the best possible design solution (Love et al 1997). Additionally, architects, who are seen to be traditionally the leader of the construction process, seem unwilling to give contractors the leadership of this process (Dulaimi et al 2004).

In reality, however each project participant in the traditional system is a separate entity and there is no overall management and coordination in this system (Tenah, 2001). It is also said that it is difficult for the architect to exercise objectivity in his/her decisions (Turner, 1990). Moreover, the abilities of architects to manage projects have been questioned over the past two decades (Masterman, 1992) and a better solution may be to involve the contractor more in the process. Furthermore, one of the major problems in the traditional system is thought to be that it pushes the budget setting responsibility onto the clients and the design consultants (Masterman, 1992; Hovet, 1994). Again, this points to the possible benefits from involving the contractor more closely in the process.

Therefore, based on the above, the concept of buildability is predominantly to ensure the project constructors according to specified costs and the most economical. When the design is finalized in the early stage, it can help in the process of final closure by minimising problem in variation order, keeping record, rationalisation of rates and other issue usually occur during the closing of final account. Besides, buildability also identifies important factors that could help the closing of final account namely effective management, effective communication and the role and responsibility of construction player besides constructing a building efficiently, economically and to agreed quality levels. The relationship between buildability and final account success is shown in figure 3.

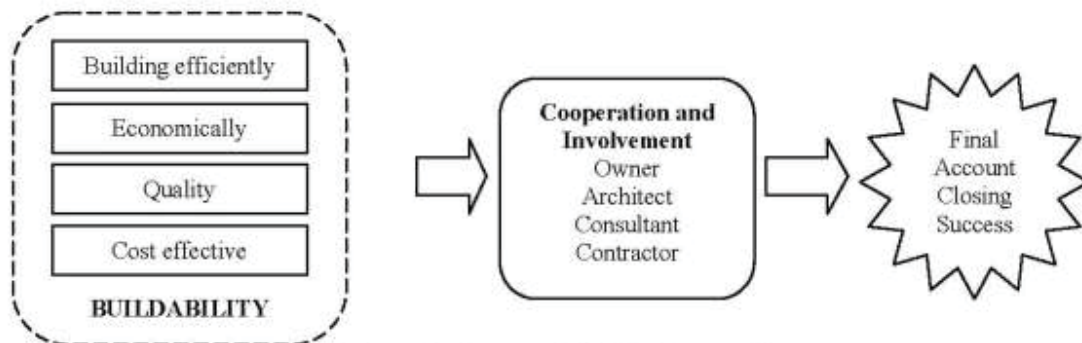


Fig. 3: The relationship between buildability and final account in achieving success of a project

3. THE MAINTAINABILITY IN FINAL ACCOUNT CLOSING

The concept of maintainability was formally initiated by the military services of the United States in 1954 (Blanchard, 1996). In engineering, maintainability is the ease with which a product can be maintained in order to isolate defects or their cause, correct defects or their cause, meet new requirements, make future maintenance easier, or cope with a changed environment. In some cases, maintainability involves a system of continuous improvement - learning from the past in order to improve the ability to maintain systems, or improve reliability of systems based on maintenance experience (Shen, 1998). In the past few decades, researchers had realized the importance of maintainability of buildings in achieving cost savings and better functioning of facilities (Briffet, 1990 and Dunston, 1999). Since then, the lack of attention to maintainability during the design and construction phases has led to difficult and costly maintenance (Construction 21, 1990). This is supported by Koo (2000)

who claims that “maintenance costs and building maintainability that have been rather neglected at the design and construction stages have resulted in buildings that are difficult or costly to maintain”.

The development of guidelines on maintainability will not only impact the maintenance budget and the service life of the building but will also influence the role of the architect or engineer in the design decision-making process in the closing of final account (Mills, 1994). A material manual is one benchmark to be used and this should contain detailed maintainability guidelines for material selection process to ensure that the decisions affecting maintenance budgets especially for final account closing are made at an early stage in the design process. Another set of documents or guidelines are the operational and maintenance manuals that are typically prepared by the contractor to the owner. This will facilitate the proper maintenance of the building throughout its life cycle. However, development of these user-oriented guidelines and making them available to contractors and clients should be a shared responsibility. In this regard, designers and suppliers could contribute in many respects, such as giving information of the performance, material durability and systematic routine maintenance while the contractors can contribute to the information on final account closing success.

On the other hand, the delay in the closing of final accounts occurs due to maintenance items in the contract documents, where the contractors still have not been paid after the expiry of the defect liability period. Any forms of contract state that final account will be paid after the defects liability period. Therefore, maintainability problems in facilities are heavily attributed to design limitations, inadequate inspection, material limitations and lack of construction knowledge (Assaf, 1995). Failure to acquire and communicate expert knowledge on the design requirements, system/component incompatibilities and performance limitations of a product is a commonly cited source of subsequent problems for maintenance personnel and also problem to final account problem. Hence, conducting periodic, documented, well-organized constructability reviews during the pre-design and design phases of the project allows key managers from all departments to be involved in order to ensure the proper input of concerns from their departments’ operations. Between review meetings, the designers research the effectiveness and justification of documented requests and either incorporate the ideas or offer alternatives that may provide the desired results into the closing of final account. Thus, the maintainability is able to help in ensuring that the final account can be completed according to the time frame and allocation budget. The relationship between maintainability and final account success is shown in figure 4.

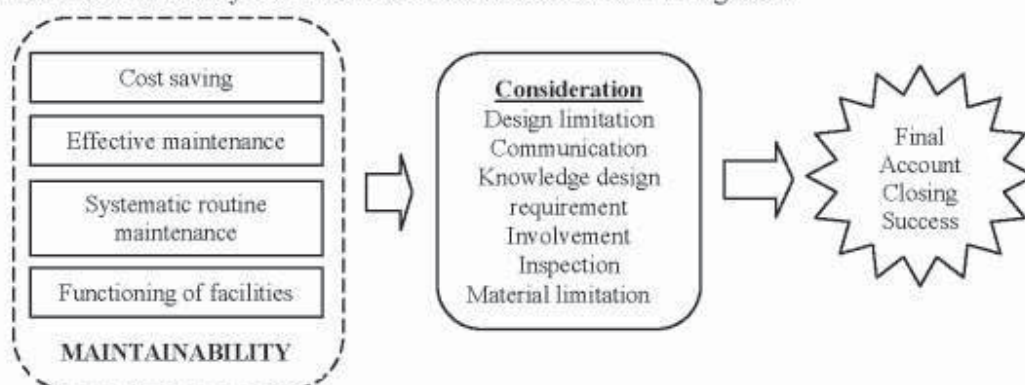


Fig. 4: The relationship between maintainability and final account in achieving success of a project

4. EFFICIENCY IN CONSTRUCTION PROCESS

Construction time has always been seen as one of the benchmarks in assessing the performance of a project and the efficiency of the project organization. Timely completion of a construction project is one goal of the client and contractor because each party tends to incur additional costs and lose potential revenues when completion is delayed (Thomas *et al* 1995). Chan and Kumaraswamy (1996) claim that a project is usually regarded as successful if it is completed on time, within budget and to the level of quality standard specified by the client at the beginning of the project. Attempts to predict construction duration represent a problem of continual concern and interest to both researchers and project managers. Skitmore and Ng (2003) identify the use of detailed analysis of work to be carried out and resources available as well as limited budget and time available to the client as the common methods of estimating construction time in practice.

Efficiency in construction process can be defined as efficient construction site communication, efficient time management, waste management and waste production avoidance. According to Preece *et al.* (1998) effective communication is one of the strategic tools available for gaining employee commitment, improving morale, increasing productivity, quality and safety and introducing new technologies. All parties involved in a construction project are producers, suppliers and consumers of information. Hence, owners, designers, contractors, suppliers and construction managers will benefit substantially from having the means to deliver and access to information wherever and whenever they need (Bakeren and Willems, 1993).

5. CONCLUSION

In general, this paper has successfully revealed of comparisons between 'buildability' and 'maintainability' in construction industry. A construction project is commonly acknowledged as successful and sustainable when the aim of the project is achieved in terms of predetermined objectives: mainly completed the project on time, within budget and specified quality in accordance with the specifications and to stakeholders' satisfaction (zarabizan *et al.* 2012b). This paper also identifies the efficiency in construction process towards the success in the final account closing. It is anticipated that the finding reported in this paper could assist the planning of future strategies and knowledge in ensuring no issues and problems in the closing of final account in construction projects. In the future, through comparative studies in other aspects, the roles and responsibilities contract administrator from the viewpoints of buildability and maintainability shall be further studied which are beneficial for the betterment of final account closing practices.

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How Brand community effect purchase intention take H.O.G and Taiwan BMW Motorrads Owner's club for examples

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ABSTRACT

This research is about exploring the relationship between brand community and purchase intention. This research compares two communities which provide almost the same service and actives, but the interesting thing is the final business behavior is totally different.

The first brand community which this research chooses is H.O.G because it is the most famous brand community sample in the world. Second is Taiwan BMW Motorrads Owner's club. It is also a big Motorcycle brand community in Taiwan. Before, to do deeply investigation, the investigator had already to do a prior interview with both two brand community managers. After interview, the result shows that two brand community provide almost the same services and their final purpose are increasing their sales. Finally, H.O.G made it, but BMW Motorrads Owner's club did not. BMW Motorrads Owner's club cannot figure out why. This research is going to find out what kind factors effect brand community inside to let members to increase or decrease their purchase intention.

The research expect to do quantitative analysis with total 300 copies questionnaires survey. Each community will have 150 copies of questionnaires. The questionnaire will let club members to do and questions will be included in some factors which are brand community's composition, purchase intention's composition and basic information about members. This research final result expects to figure out what kind reasons make brand community have different actions.

Keywords: Brand community, H.O.G, Purchase intention, Community trust, Community commitment

The Effects of Team members' Traditionalism-Modernity on Distribution Decision Rules: Investigating the Team Situational Effects

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ABSTRACT

Justice has been considered as one of the key ways to understand human behaviors in society, the same in the company. Although cultures are the important factor to influence how people choose the distributive rules to decide whether they are fair, however, the power of situation is more influential.

Different from the past study which focused on the individual level, we try to investigate based on "team". We'll explore the direct effect between the degrees of traditionalism and modernity team members own and distribution decision rules team will have. Moreover, the most important thing is that we'll see how the moderators work, which are team cohesiveness and task interdependence, especially on people who both has high traditionalism and modernity values.

The major instruments we will adopt is the Individual Traditionalism-Modernity Scale originally developed by Yang, Yu & Ye(1991). Also, another instrument we'll use is Situation Story, which is included the real conditions in work places. From the first-person point of view, we'll expect to see how subjects will choose the rules they'll adopt based on the degree of two values they own, and the story. Samples will mainly be based on team, which comprise at least three to five members.

The research hopes to contribute to the improvement and flexibility of team's decision making.

Keyword: Distributive Justice, Individual Traditionalism, Individual Modernity, Team Cohesiveness, Task Interdependenc

The impact between user privacy management and the system using on Social Networking Sites, emphasize on the information convenience and establish a safety user privacy mechanism- Take Facebook as an example

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ABSTRACT

The prevalence of Internet has greatly changed the way how people interact with each other; more and more people exploit Social Networking Sites (SNSs) to be an implement for communication, also, have become highly popular to share information with friends and get knowledge from others. As Facebook has become more popular, most of the users may not realize that they already left a lot of private information on SNSs. Moreover, to let users connect with their friends easily, the default privacy settings usually are not conscientious. Therefore, the privacy information may be gotten by some malicious person and cause privacy infringement. Furthermore, the open application interface along with many privacy loopholes in SNSs, also cause some privacy problems. People began to realize the importance of privacy issues and how to manage it has become a primary problem.

The present study is a qualitative research and interview with different ages that use SNSs, to find out the connection with different evolution of SNSs. The results indicated most of the user only care about the improvement of the system and the relationship connections, only employed person concerns about the privacy problems. However, students are the main users of Facebook, but they often emphasize more on the convenience and ignore the important of information security.

This research distributed a questionnaire based on the interview data, through the online platform My Survey and yielded 92 valid responses. We used structure equation modeling (SEM) and SPSS 12.0 software to analyze. The results indicated, although users emphasis on privacy, but the degree of privacy management is low; Facebook users focused more on convenience, but highly dissatisfied with the quality of management of the site's privacy. However, the main determinant of the convenience is the interaction with friends. Thus, the trust in friends will impact the privacy of individual users. Finally, this study proposed the conclusions and some suggestions for enterprises or further researchers to refer to.

Keywords: Facebook; Social Networking Sites; Privacy Management; Classified Authorization; Privacy Concern

Finance

Room 608 15:00-16:30, March 17

Session Chair: Dr. Gideon Els

309

Including A Module on Financial History in A Course Work Master's Programme in Finance – A Reflective Case Study

Gideon Els | *University of Johannesburg*

220

Micro Finance for women empowerment-A case study of SHG-Bank linkage programme in Maharashtra

Murlidhar Ananda Lokhande | *Dr. Babasaheb Ambedkar Marathwada University*

221

The Incremental Hedging Gains of Range-based Model under Regime Switching

Hsiang-Tai Lee | *National Chi Nan University*

098

Evaluating Investment Projects with Real Options: An Application within Mining Industry

Oktay Taş | *Istanbul Technical University*

Kaya Tokmakçioğlu | *Istanbul Technical University*

243

Modelling Capital Structure Adjustment Speeds Across Macroeconomic States: Evidence From The Jse

Sudha Krishna | *University of the Witwatersrand*

Chimwemwe Chipeta | *University of the Witwatersrand*

Christo Auret | *University of the Witwatersrand*

248

An Investigation of the Relationship between Fund , Efficiency and Ratings

Mahendra Raj | *University of Sharjah*

Mohamed Hamid Uddin | *University of Sharjah*

413

Need for Business Ethics and Corporate Governance in the 21st Century

Sudha Subramaniam | *University of Mumbai*

414

New Frontiers in Healthcare Management

Radha Subramaniam | *MGM College, Panvel*

Including a module on financial history in a course work master's programme in finance – a reflective case study

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ABSTRACT

In 2007 the Department of Finance and Investment Management at the University of Johannesburg reviewed its current course work magister programme in Financial Management. Past experience and scholarly research had shown that the biggest problem with course-work masters programmes is the limited research component included. To counter this a new module 'Developments in Finance' was developed to advance students' understanding and application of the various inter- and intra-relationships of the issues and decisions that are part of the developments in finance over time.

Keywords: developments in finance, history of finance, course work magister programme, curriculum studies

1 INTRODUCTION

In 2007 the Department of Finance and Investment Management (DFIM) at the University of Johannesburg, South Africa, embarked on a year-long investigative and research path of its current M.Com (Financial Management) programme under the leadership of the author. The need for this process arose as a result of an institutional programme review and eminent changes in industry when it comes to magister degrees in financial management (see research by Daud, Abidin, Sapuan & Rajadurai, 2010).

For many years there used to be an M.Com (Financial Management) programme in the old Rand Afrikaans University (RAU) and UJ (since 2005). It was however apparent from the programme review that the requirements for student enrolment in this programme as well as its curriculum have become obsolete in an ever changing finance and investment management environment. Moreover the teaching and learning philosophy underpinning this programme could be viewed as archaic in nature.

After an internal benchmarking exercise and reviewing many similar national and international magister programmes, the DFIM tabled a new M.Com (Finance) degree programme for approval at the end of 2007 with a view of introducing it in 2009.

The fundamental purpose of the programme put forward was that students can develop their applied competence in the mastering, interpretation, reflection and application of principles in the broader field of finance (i.e. including investment management) and not a purely financial management focus. Moreover students should now show evidence of

novice scientific research, the application of scientific research methodologies and an ability to reflect thereon in the holistic context of finance through their minor dissertations.

A glaringly obvious syllabus change included a reworking of the credit structure attached to the programme whereby its research component now constituted 50% of the programme. Other changes were an update and modernisation of current modules included in the programme as well the introduction of two new modules namely Developments in Finance and Competitive Strategy. The inclusion of Competitive Strategy as a module in the programme became apparent purely as a result of industry demands on students entering the workplace.

From the onset of the renewal process of the magister degree programme in the DFIM, it was clearly stated that students graduating should not just have the highest levels of subject specific knowledge but also additional competencies such as financial leadership, applicable business strategy skills and an ethical awareness of the milieu in which they will operate.

2 PERCEIVED EDUCATIONAL CHANGES TO BE INCORPORATED

With the development of this new master's programme, three basic principles were taken into consideration:

- Quality – the sum of the characteristics of this new programme should be able to satisfy the stated or implied needs of the clients (i.e. students) as well as the programme objectives set.
- Performance – it should be able to meet the defined objectives set for the programme.
- Effectiveness – it should causing or lead to change as envisaged in the planning phase of the programme design.

The course work component of the programme was developed where it included the following modules to be completed during the first year of the two-year programme namely Corporate Finance, Competitive Strategy, Risk Management, Empirical Finance, Financial Engineering A, Financial Engineering B, Developments in Finance and Advanced Research Methodology in Finance. During the student's second year of study, they then complete the Minor dissertation.

With all of this in mind, certain constructs were put in place wherein the development of the programme was done.

Firstly, the role of the lecturer was considered. By facilitating the course work modules in the programme, lecturers were therefore not there as a “teacher” or ‘communicator’ of knowledge but also as a ‘facilitator of learning’. This is very evident from the basic problem-based learning approach followed in classes whereby students are confronted with various scenarios and issues emanating from case studies sourced nationally and abroad. Augmenting this approach is the use of guest lecturers from industry, each a

leader in his/her field of competitive strategy.

Secondly, the integration of modules and generic skills were taken as important. By way of a 'cross-pollination' process of modules, generic finance topics or issues are included in one or more of the course work modules in the programme. An example of this maybe the issues of strategy, risk management and governance. Risk management is not *per se* a core ingredient of the competitive strategy module (it is covered in detail in the modules Risk Management and Financial Engineering) but students are encouraged to identify and exploit opportunities within a case study scenario while striving to reduce risks (strategic, operational, financial, marketing, legal, environmental, etc.). The teaching and learning philosophy followed here is very much characterised by the Chartered Institute of Management Accountants' (CIMA) Test of Professional Competence in Management Accounting (TOPCIMA) examination. Students do not just have to provide evidence of a sound technical knowledge but also be able to apply technical knowledge in an analytical and practical manner; solve a particular problem by distinguishing the relevant information from the irrelevant, in a given body of data; appreciate that there can be alternative solutions and understand the role of judgement in dealing with them; integrate diverse areas of knowledge and skills; communicate effectively with users by formulating realistic recommendations, in a concise and logical fashion; and identify, advise on and/or resolve ethical dilemmas – all within a simulated business context.

As was pointed out in the introduction, a primary concern of the old master's programmes that were offered at the University were the lack of in-depth research in module presentations as well as in the work the students had to complete.

3 INCLUDING A MODULE ON FINANCIAL HISTORY

Past experience and scholarly research have shown that the biggest problem with course-work masters programmes is the limited research component that students have to complete. Very often one finds the 'ABD' principle amongst these students – all but dissertation! Students seem to lose energy toward the end of the academic programme and then neglects the satisfactory completion of their minor dissertation to the detriment of not just themselves but also the institution. With this in mind, and to allow students to be open to more than just main-stream financial management and investment management, a new module called 'Developments in Finance' (or 'History of Finance') was developed and included in the curriculum.

When one thinks of financial sciences as a field of study (UJ, 2013), one may narrowly augment it and say that it includes aspects of accounting, financial management, investment management and even a brief part of economics! Further research on each of these fields of study provides further sub-division of them and leads one to see that in both the cases of accounting and economics, a history field of study for each exist.

Over time these fields of study have developed in such a manner that internationally renowned academic journals have been found where further research of both the history of accounting and the history of economics are published.

In the case of accounting history, one finds *Accounting History* (SAGE, 2013) – a publication of the Accounting History Special Interest Group of the Accounting and Finance Association of Australia and New Zealand. Another highly respected journal outlining issues within accounting history is the *Accounting History Review* (formerly known as *Accounting, Business & Financial History*) (Taylor & Francis, 2013).

In the case of economic history, the number of journals are even more so much so that Di Vaio, Waldenström and Weisdorf (2009) completed a full citation-based impact-adjusted analysis on the twelve most influential journals within the field of economic history.

In the case of finance, only one journal focusing solely on the history of finance is available, namely the *History of Finance eJournal* (Social Science Electronic Publishing, 2013). Other journals do exist that also focus on the history of one of the niche areas within the broader field of finance.

A module on ‘financial history’ is not such a far-fetched idea. Prominent international higher education institutions (such as Harvard Business School, New York University’s Stern School of Business, Ohio State University, Copenhagen Business School, Norwegian School of Management, Utrecht University, London School of Economics, University of Reading and the University of Glasgow) include such a module in their masters programmes with some even providing potential doctoral students an opportunity for very focused research in this area.

4 A MODULE ON DEVELOPMENTS IN FINANCE

4.1 Background

The history of finance (Miller, 1999) is typically always seen from the view of either:

- a business school stream or an economics department stream; or
- a macro or micro normative position; or
- as highlights of what important developments in finance have occurred over the past few centuries e.g. the Markowitz and the Theory of Portfolio Selection; William Sharpe and the Capital Asset Pricing Model; the Efficient Market Hypothesis; and the Modigliani-Miller Propositions.

So what about a focus on pure ‘historical finance’? A focus on this ‘field of study’ provides an enormous amount of examples such as:

- the Tulip mania of the sixteen-hundreds;
- the South Sea Bubble & Mississippi Company in 1710;
- the panic of 1837;
- the railway mania of the 1840s;
- the Long Depression from 1873 to 1896;
- Post-World War I hyperinflation;
- the Wall Street Crash of 1929;
- the Great Depression of the 1930s;
- the Oil Shock in 1973;

- the 1979 energy crisis;
- the savings and loans crisis of the 1980s;
- Black Monday in 1987;
- the Asian financial crisis of the 1990s; and
- the dot-com bubble of 1995-2001.

So where does one now fit the module ‘Developments in Finance’ in? first and foremost this module may be seen as a spin-off from the field of economic history. The analysis in ‘finance’ history is undertaken using a combination of historical methods, statistical methods and by applying economic theory to historical situations and institutions. Topic may include aspects of business history and financial history and it overlaps with areas of social history such as demographic history and labour history.

4.2 Developments in Finance

The purpose of the module ‘Developments in Finance’ was thus to advance the student’s understanding and application of the various inter- and intra-relationships of the issues and decisions that are part of the developments in finance over time. The development of finance from the early 19th century up to the present is investigated by way of independent and original qualitative and/or research in a national and international context.

McCraw (1999) did point out that almost no student comes to complete a master’s degree for the purpose of studying history. The key-concept in the teaching and learning philosophy of this module is therefore self-discovery. Students are typically removed from their financial management comfort zone and put in a situation where previous undergraduate knowledge and skill will not suffice in solving (historical) dilemmas posed.

By way of a two-pronged process, students are not just introduced to research in a very applicative manner but also given the opportunity to delve into history when it comes to developments in finance. In a practical sense students are thus required to prepare a ‘novice research portfolio’ consisting of various written assignments amplified by oral presentations of their findings, either individually or in groups.

Assignments *inter alia* require students to research and report on the use of cartoons as a vehicle to convey information on a specific aspect in history with a finance emphasis; write a brief literature review and critique on themes such as the Oil shock of 1973 and the 1979 energy crisis, the Wall Street Crash of 1929; Black Monday, 1987 and the stock market downturn of 2002, and the US housing bubble in 2001; and write an opinion paper on current issues or themes in finance such as behavioural finance, environmental finance and corporate social responsibility.

Through a multi-iterative process, students’ assignments are assessed and provided with detailed comments on their writing. Indirectly this already prepares them for the completion of the minor dissertation they have to work on as a final module in the completion of their master’s degree.

5 CONCLUSION

In 2013 the DFIM will be conducting an in-depth programme and module review of the recently introduced M.Com (Finance) degree. This will also provide solid quantitative and qualitative data as to the success of the changes that have occurred over the past years. It is the intention of the author to then write a follow-up article on the outcome of the reviews.

It is however possible to state that there must be some reason that the programme is so sought after when one notices that the DFIM typically receives three times more applications from students than what is possible to be enrolled annually.

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Micro Finance for women empowerment- A Case Study of self-help groups-Bank linkage programme in Maharashtra.

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ABSTRACT

Micro finance programmes have been receiving a considerable attention world over for their potential to generate income and employment and alleviate poverty. The experience shows that the micro finance programme has a high degree of out reach to women i.e. 82.67 per cent of the aggregate clients in India in 2010, 73 per cent in Latin America, 70 per cent in Africa and 88 per cent in Asia. In India, National Bank for Agriculture and Rural Development (NABARD) sponsored SHG-Bank linkage programme is the fastly growing micro finance programme in the world covering 97 million poor households as on 31st March, 2011.

The research paper was focused to find out whether micro finance really contributed to the socio-economic empowerment of the group members? Did micro financing through the groups encourage and support entrepreneurial activities? To what extent, the groups could mobilize thrifts? Out of 2180 Women groups promoted by 12 NGOs operating in Maharashtra (India), 218 groups (10 per cent) were selected randomly. Two members from each group (i.e.654 members) were selected randomly. After joining the groups, the monthly average income and savings of the respondents had shown increase by 133.73 per cent and 76.27 per cent respectively. The confidence level of the respondents had increased to a great extent. They had reported active participation in socio economic activities. Overall personality index had shown growth of 59.01 per cent. It was inferred that micro financing through women self help groups had brought a positive change in the lives of the members. The study concluded that poor, discriminated and underprivileged women if join the groups, can come out of poverty.

Key words- Micro finance, empowerment, entrepreneurship,

1. INTRODUCTION

Micro finance is defined as provision of thrift, credit and other financial services and products of very small amounts to the poor in rural, semi-urban or urban areas for enabling them to raise their income levels and improve living standards. Micro finance has gained a lot of importance in financial sector of India through Self help groups-Bank linkage programme (SBLP) covering more than 9.7 crore poor households. The SBLP is the largest and fastest growing in the world with 47.86 lakh Self help groups, of which 39.83 lakh are women groups (NABARD Report, 2011). In India, two broad approaches prevail in case of micro financing viz. self help group –bank linkage and micro finance institutions. NABARD has been supporting the SHG-Bank linkage programme since

1992. In the context of growing demand for micro finance by self help groups, RBI made linkage of self help groups with banks as a priority sector activity in 1996. The government of India has been supporting the programme by making special budgetary provision for promotion of self help groups since 1999.

The bank credit flow towards self help groups amounted to Rs.31, 221 crore registering the growth of 11.35 per cent over the preceding year's figure. However, it constituted just 6.99 per cent of the aggregate rural credit flow which needs to go up at least 20 per cent (NABARD reports, 2001-11)

2. SHG-Bank linkage programme

In Maharashtra, there were 1,23,09,088 (estimated) rural households on 31st March, 2011. The estimated number of poor rural households in the state was 58, 96,053 (i.e. 47.90 per cent of the total rural households). Under the SHG-Bank linkage programme, 77, 19,934 (62.72 per cent) house holds have been covered (Status of MF in India –Report, 2010-11). The state has registered a remarkable growth in SHG-Bank linkage programme over the period of 10 years. During 2010-11, 2,57,856 credit linked SHGs had Rs. 1,07,136 lakh as outstanding loan amount against them. It is to be noticed that the average finance provided by the banks to SHGs is inadequate to start and support economic activities considering the increasing price levels. So, there is need of increasing the amount of loan assistance to the SHGs in Maharashtra state (Reports of state level committee on credit delivery innovations, Maharashtra state,1996-2010)

3. Research Methodology

The research paper was focused to find out whether micro finance really contributed to the socio-economic empowerment of group members? Whether the groups were instrumental for developing entrepreneurial skills among the members? To what extent, the members were politically empowered? Out of 2180 Women groups promoted by 12 NGOs operating in 12 districts of Maharashtra (India), 218 (i.e.10 per cent) groups were selected respectively for study purpose on the simple random sampling basis. Only those groups having more than three years of age were selected. In all, 654 members were selected i.e. three from each group and contacted for collecting the required data. The primary data was collected with the help of a well structured questionnaire and partly interviews. The secondary data was tapped from NABARD reports.

The design of the study was based on the interaction with the group members and filling up the structured questionnaire. The study had focus on understanding socio-economic status of group members on Pre and post joining the groups approach.

4. Literature Survey:

Access to financial services has got significance in the context of empowering the poor households and achieving Millennium Development goals. A few research studies have attempted to investigate the impact of Micro financing on women empowerment. According to a survey (World Survey on Women Development, 1999) more than 86 per cent women workers are in agriculture sector in India. In micro

enterprises owned by women, they work for more hours but get less remuneration compared to men. It can be observed that women have been excluded from the formal financial services on the ground of their property less status, castes and discriminatory practices. In order to empower them micro financing to women micro enterprises could be a successful strategy. Dhillon (2010) observed that the Banks perceive poor rural women as higher risky group with limited liability to pay back their loans. The loans demanded by poor people are small in size and not sufficient to cover the transaction cost. Collateral requirements are difficult for women as the property is generally registered in the names the male members of the family. Usha P (2010) studied 200 women SHGs from Srikakulam and Godavari Districts of Andhra Pradesh. Recovery of loans was found very encouraging. Forty six members got elected to various posts of Panchayat committees and ZPs. Around 90 per cent members were aware about family planning. The study by Upadhey and Kadam (2008) revealed that the SHGs were facing financial, administrative, marketing problems. The interest rates charged on lending was as high as 24 per cent p.a. Around 40 per cent groups were engaged in economic activities.

Another study inferred that women members are empowered but not at the same pace. The degree of awareness, exposure to socio-economic activities determines the direction of women empowerment (Swain, 2007). Bokil and others (1998) had surveyed 208 women group members from Maharashtra, Goa, Karnataka, Andhra Pradesh and Punjab. The study observed that the recovery rate was 100 per cent due to correct identification of the beneficiary, peer pressure and individual commitment. Singh (2009) inferred that the success of micro finance depends on identification of suitable enterprises, training and skill development and proper utilization of resources. Another study (Talwar, 2009) covered 217 women respondents in the region and revealed that the income levels of the members increased significantly and awareness levels rose satisfactorily. However, the micro finance programme had not reached to the poorest of the poor women. Pati (2008) in his study of 150 women groups, disclosed that the small size of SHGs have resulted in to the limited financial and human resources so they are found relied on promoter agencies. Acharya (2010) observed that the micro finance has helped in reducing poverty in Orissa, generating incremental employment.

The study by Patra S (2008) observed (75 groups) that interest charged on micro credit was 36% p.a. Around 70 per cent loans are used for consumption and 30 per cent for micro enterprises. However, the members were not found aware about financial skills. Micro financing through women self help groups for promotion of micro enterprises has become an effective strategy for alleviation of poverty and empowerment of poorest of the poor. Its significance is felt mostly in developing countries like India. Recently, the incidence of poverty in India (2004-05) was estimated to be 37.2 per cent according to Tendulkar Committee Report. Adjusting the inflation, it was estimated to be 32 per cent during 2009-10. In a sample of 1102 groups promoted by PRADAN in three tribal districts of Orissa and Chhattisgarh, 10 per cent groups were defunct. The drop out rate for individual members was around 14 per cent. The factors responsible were: social heterogeneity, personal conflict, inability in meeting loan payment liability, monthly savings etc (Micro finance in India, A State of the sector Report, 2007).

A study conducted by APMAS and Center for Micro Finance (2006) covered 202 SHGs

in AP, Orissa, Karnataka and Rajasthan. The study observed that the number of BPL members accounted 51 per cent, the drop out rate was as high as 30 per cent. At least 10 per cent groups had not held meetings during the year and 20 per cent had carried out the transactions outside the meetings. The startling fact was that two thirds of the amounts saved by the groups were kept idle with the banks. The idle funds accounted around 44 per cent of the total bank loans outstanding against the groups! A researcher in his study inferred that despite the considerable achievements of the SHG-Bank Linkage programme, sustainability of SHGs has not been clear (Nair,2005). Tiwari and Fahad (2001) concluded that the poor repay the loans honestly. The peer pressure and sequential lending provide strong repayment motivation resulting in lower default rates. Micro finance can contribute to solving the problem of inadequate housing and urban services as an integral part of poverty alleviation. A study (Nanda Y S, 2001) was conducted in Karnataka, Andhra Pradesh and Tamil Nadu covering 637 groups (509 women groups). The study observed that- The highest participation in group activities was by women. Membership of SHGs came from poor sections of the society. The loan recovery in case of almost all groups was 100 per cent. The groups charged interest on loan in the range of 18-36 per cent p.a. The weekly meetings were conducted regularly.

5. Data analysis and discussion:

Young and dynamic members of the groups were found instrumental in leading their groups in right direction. The study found that majority of the respondents i.e. 83.94 per cent were in the age group 21-50 years. Adult women members were found guiding the members properly.

As regards to marital status of the respondents, it was found that 84.71 per cent of the respondents were married and 5.50 per cent respondents were unmarried. It was noteworthy that 4.59 per cent and 5.20 per cent of the respondents, being widows and divorcees respectively, were well supported by the groups. Of 654 group members, 37.92 per cent members were from general category whereas 62.08 per cent group members belonged to reserve category i.e. OBCs, SC/ST and VJNT-DNT. No discrimination was observed in working of the groups on the basis of caste or religion. Women self help groups are instrumental in evolving social engineering and integration.

With regard to literacy level, the study disclosed that majority of the respondents i.e. 85.47 per cent were literate whereas 14.53 per cent respondents were illiterate. However, just 5.50 cent respondents had completed graduation.

As far as occupational pattern was concerned, majority of the respondents i.e. 45.47 per cent were agriculture labor and 25.08 per cent respondents were marginal farmers. It was noticed that the earnings of these respondents were uncertain and irregular. Of 654 women respondents, just 8.72 per cent were engaged in services like Anganwadi sevikas and Arogya sevikas in villages. Houses in rural areas of Maharashtra are simply constructed having mud walls/ brick walls and covered with roofing tiles. More than 62.54 per cent of the respondents had Pakka houses and around 37.46 per cent had kaccha houses. (table-1).

Table-1 Socio-economic profile of the respondents (N-654)

Age group	< 21 yrs	21-35 yrs	36-50yrs	51-65 yrs
	5.20%	46.48%	37.46%	10.86%
Marital status	Unmarried	Married	Divorcee	widow
	5.50%	84.71%	4.59%	5.20%
Social category	General	Reserve	-	-
	37.92%	62.08%	-	-
Literacy level	Illiterate	Primary	Secondary	Graduation
	14.53 %	27.83%	52.14%	5.50%
Occupation	Agriculture	Agriculture labor	Small business	Service
	25.08%	45.8%	20.34%	8.72%
Housing	Pakka	Kaccha	-	-
	62.54 %	37.46%	-	-
Monthly income	Rs. 1000	Rs. 1500	Rs.2000	Rs.2500
	46.33%	24.00%	18.65%	11.00%
Monthly savings	Rs. 50	Rs.100	Rs.150	-
	61.47%	26.30%	12.23%	-

Source: Field survey, 2010-11

6. Entrepreneurship:

Entrepreneurship is the purposeful activity undertaken by an individual or a group of individuals to earn profit by producing, processing or distributing goods and services.

The NGOs had organized entrepreneurship development programmes/ skill development programmes in association with the MAVIM, MCED and other training agencies in order to train and guide group members. The groups meetings were found instrumental in encouraging the members to start income generating activities.

On an average, the investment and income per activity was Rs.29,845 and Rs.3,436 respectively. Around 91 per cent group members were found having investment in the form of income generating assets such as, milch animals, machines and shops of their own. However, most of the activities started by the respondents were traditional and labor intensive.

The study also disclosed that the respondents had to use their own funds as well as funds borrowed from their respective groups to invest in business activities. At times, they were assisted by the groups with internal money lending for meeting domestic needs.

Table-2 Activity wise investment, income and jobs created
(As on 31st March, 2011)

Business Activity	Nos.	Investment (Rs.)	Income (Rs.)	Jobs (Nos)	Av. invest. Col.3/col.2	Av.income Col.4/col.2	Av. Jobs Col.5/col.2
1	2	3	4	5	6	7	8
Pavbhaji center	7	1,33,700	26,000	08	19,100	3714	1.14
Patravali making	20	2,45,000	44,900	21	12250	2245	1.05
Dairy	72	14,25,300	1,62,200	101	19795	2226	1.35
Cloth center	14	6,09,100	64,100	27	43507	4579	1.93

Chicken center	4	73,700	17,300	7	18425	4325	1.75
Goat rearing	75	13,21,900	1,50,700	83	17625	2010	1.17
Vegetable vending	25	3,18,000	87,100	25	12720	3496	1.00
Bangle shop	10	1,29,700	29,600	10	12970	2960	1.00
Floriculture	8	1,68,900	20,100	8	21113	2513	1.00
Saree center	27	14,62,700	1,42,000	56	54174	5259	2.07
Papad/pickles	46	6,83,500	1,02,100	55	14859	2220	1.20
Xerox center	16	11,61,400	84,800	27	72588	5300	1.69
Grocery shop	21	12,65,500	1,00,900	37	60262	4805	1.76
Utensils shop	14	4,64,500	50,200	16	33179	3586	1.14
Beauty parlor	24	11,65,700	1,07,000	45	48571	4458	1.87
Tea stall	5	62,700	11,100	5	12540	2220	1.00
Broom making	16	1,83,100	41,800	18	11444	2613	1.12
Tailoring	37	7,23,600	91,700	45	19557	2478	1.22
Thresher	12	3,43,022	57,400	22	28585	4783	1.83
Poultry	51	9,21,100	1,01,700	59	18061	1994	1.16
Transportation	19	18,72,700	1,72,900	40	98563	9100	2.10
Brick making	22	8,18,900	1,02,000	51	37223	4636	2.32
Grain selling	12	3,60,100	43,200	14	30008	3600	1.17
Mid day meal	19	2,63,600	49,500	20	13874	2605	1.05
General shop	21	13,08,100	1,29,700	42	62290	6176	2.00
Floor mill	22	8,04,300	95,000	26	36560	4318	1.18
Pan stall	3	1,02,200	16,600	3	34067	5533	1.00
DTP center	16	4,68,100	60,200	18	29256	3763	1.13
Chappal making	5	88,778	18,800	7	17756	3760	1.40
Cosmetics shop	11	5,69,800	66,700	19	51800	6064	1.73
Total	654	1,95,18,600	22,47,300	915	29845	3436	1.40

Source: Field survey, 2010-11

7. Financial resources mobilization

Financial resources of the groups under study consisted monthly savings (thrifts) by the members, borrowings from banks, interest on loans etc. One of the basic activity of the self help group is savings collection from the members in order to create its own fund. When enquired about monthly savings, the respondents reported that before joining the groups, saving activity was irregular and the amount of savings varied from Rs.50 to Rs.150 per month. After joining the groups, saving a particular amount became mandatory and the amount ranged between Rs.100 to Rs.200 per month. As a result of certainty in income, the members were found comfortable to collect savings with their respective groups.

Table- 3 Average monthly savings, income and loan assistance (N-654)

Particulars	Pre joining	Post joining
Aggregate monthly savings of the respondents	Rs.49,300	Rs.89,000
Average monthly saving per member	Rs.75.38	Rs.132.87
Aggregate monthly income of the respondents	Rs.9,61,500	Rs.22,47,300
Average monthly income per member	Rs.1,470.18	Rs.3,436.24
Aggregate loan assistance by the SHGs to the members	-	Rs.74,35,000
Average loan assistance obtained per member	-	Rs.11,368
Internal lending per member	-	Rs.5000-7,500

Source: Field survey, 2010-11

On an average, the monthly saving amount before joining the group was Rs.75.38 per respondent which rose to Rs.132.87 per respondent after joining the group, registering the growth by 76.77 per cent (table-3). In Pre joining period, the average monthly income of the respondent was Rs.1,470.18 which increased to Rs.3,436.24 per respondent in post joining period registering a significant growth by 133.73 per cent (table-3). The women members agreed that after joining groups, their risk bearing capacity had increased to a great extent.

As regards loan assistance to the members, it varied between Rs.5,000-15,000. On an average, average loan assistance during study period was Rs.11,368 per member. Internal money lending was in practice in all groups. The assistance was available for needy group members to meet emergency needs. Majority of the respondents (54.54 per cent) had availed loan amount for three times. It was interesting to note that 78.57 per cent respondents had used borrowed funds for productive purpose i.e. for income generating activities whereas 21.43 per cent had used funds for non productive purposes such as, marriages, housing repairs, repayment of old debt etc. (table-3). More than 81 per cent of the respondents reported paying their dues on due date, however, 18.83 per cent of the respondents had delayed the repayment of loan amount. reasons stated by the respondents were: high interest burden, inadequate income, emergencies and disablement.

Impact of SHGs on overall personality of the respondents:

Impact of the SHGs was evaluated on the basis of a 5 point continuum and the scoring pattern was 5, 4, 3, 2 and 1 for very high, high, moderate, low and very low respectively. The aspects covered for assessing the impact were regarding their self confidence, self esteem, decision making ability and capacity building. The approach applied was before and after joining SHGs. The impact index was computed by using the formula: Impact Index = Actual Score/ Maximum Scores*100

The various indices i.e. self confidence index, self esteem index, decisiveness index and capacity building index given in table 5.37 indicated that overall personality of the group members had increased significantly. It was noteworthy that after joining the groups, more than 80 per cent of the respondents felt respected by family members and others and 60.39 per cent respondents had expressed feeling more secured because of financial and social support extended by the groups.

As far as decision making was concerned, after joining the groups, more than 50 per cent

of the respondents had reported their major role in family decisions. More than 75 per cent of the respondents had started their own economic activities after joining the groups which indicated their risk taking attitude and problem solving capacity. After joining the groups, more than 59 per cent of the respondents had reported active participation in attending social meetings, participating anti dowry campaign, anti alcoholism campaign and organizing group marriages.

Table- 5 Impact of SHG activities on personality of the respondents (N-654)

Impact factor	Pre joining			Post joining			Incremental growth index
	Actual scores	Max. Score	Index A/M*100	Actual scores	Max. scores	Index A/M*100	
A. Self confidence	2255	9810	22.99	7455	9810	75.99	53.00
I speak confidently with family members	1075	3270	32.87	2695	3270	82.42	49.55
I speak confidently with outsiders	730	3270	22.32	2655	3270	81.19	58.87
I Speak confidently in public	450	3270	13.76	2105	3270	64.37	50.61
B. Self esteem	2150	9810	21.92	7945	9810	80.99	59.07
I feel self respected	780	3270	23.85	2750	3270	84.09	60.24
I feel self relied	695	3270	21.25	2665	3270	81.50	60.25
I feel self secured	675	3270	20.64	2530	3270	77.37	56.73
C. Decision making	1985	9810	20.23	8090	9810	82.47	62.24
I take decisions in family matters	695	3270	21.25	2750	3270	84.10	62.85
I take buying/selling decisions	680	3270	20.79	2660	3270	81.34	60.55
I take decisions in financial matters	610	3270	18.65	2680	3270	81.96	63.31
D. Capacity building	2335	9810	22.78	8390	9810	85.52	62.74
I started own venture	665	3270	20.34	3270	3270	100.00	79.66
I have risk taking attitude	825	3270	25.23	2610	3270	79.82	54.59
I can overcome problems	845	3270	25.84	2510	3270	76.76	50.92
Total score	8725	39240	22.23	31880	39240	81.24	59.01

Source: Compiled on the basis of responses collected

Nirmal Gram programme which is related to village cleanliness and hygiene, attracted more than 68 per cent of the respondents. However, the fact should be disclosed here that yet there were 50 per cent members as non participants in various social activities. So, in order to empower the women members in its true sense, there is need of creating conducive social environment and persuasion to increase active participation of all

members in social activities.

Political Empowerment:

The disclosure of the study was that women members were somewhat hesitant for joining political activities before joining the groups. As a result of awareness created by the groups, more than 55 per cent of the respondents had started attending political meetings, 48.93 per cent of the respondents joined election campaigns. It was noticeable that 31.19 per cent of the respondents had contested the elections and 11.16 per cent group members got elected to various positions on Zilla Parishads, Panchayat Committees and Village Panchayats.

Economic Empowerment:

It was disclosed that average monthly income was Rs.1,470.18 per member before joining the group which increased to Rs.3,436.24 per member after joining the groups registering an increase by 133.73 per cent. After joining the groups, the average monthly saving increased to Rs.143.83 per member from Rs.62.17 per member earlier, posting an increase by 76.27 per cent.

Table-10 Empowerment Aspects (N-654)

Sr. no.	Empowerment Aspects	No.of respondents	
		Pre joining	Post joining
.	Social empowerment		
1	Attending social meetings/ gatherings	126(19.27)	386(59.02)
2	Participating Anti dowry campaign	102(15.60)	418(63.91)
3	Participating Anti Alcoholism campaign	63 (9.63)	374(57.19)
4	Participating Nirmal Gram programme	129(19.72)	448(68.50)
5	Organizing group marriages	117(17.89)	417(63.76)
	Political Empowerment		
1	Attending political meetings	90 (13.76)	360(55.04)
2	Election campaigning	67 (10.24)	320(48.93)
3	Contesting election	65 (9.93)	204(31.19)
4	Elected members of ZP, BC, VC	24(3.67)	73 (11.16)
	Economic Empowerment		
1	Average monthly income per member (Rs.)	Rs.1,470.18	Rs.3,436.24
2	Average monthly saving per member (Rs.)	75.38	132.87

Source: Compiled from questionnaire

The groups were instrumental in developing entrepreneurial skills and encouraging them to start own activities. All 654 members had started own economic activities. The study disclosed that majority of the respondents i.e. 83.94 per cent were in the age group 21-50 years. Young and dynamic women were found ready to take business risk and lead the groups. More than 84.71 per cent of the respondents were married. So, it helped the groups to social integration and equality, the groups consisted the members from all strata of the society. As a part of group activities, 14.53 per cent of the respondents, being illiterate were taught writing their names and sign. Educated members were found aware, active and having interest in group activities. Most of the respondents i.e. 45.87 per cent were agriculture laborers and 25.08 per cent respondents were marginal farmers. Before

joining the groups, more than 63 per cent of the respondents had daily earning less than Rs.50. But after joining the groups, there was significant growth in average monthly income of the respondents by 145.28 per cent. Majority of the respondents (54.54 per cent) had availed loan amount for three times. It was interesting to note that 78.57 per cent respondents had used borrowed funds for productive purpose i.e. for income generating activities whereas 21.43 per cent had used funds for non productive purposes such as, marriages, housing repairs, repayment of old debt etc. The respondents reported positive changes of participation in social life, interaction with outsiders i.e. bank officers, government officers etc., respect and honor given by the family members, taking decisions and participating in political activities. The dependency of the members on money lenders had reduced to a great extent. Being the member of SHG was matter of pride and status.

8. Conclusion

The study inferred that group association and access to financial services certainly brings positive changes among group members leading to their socio-economic empowerment. However, there is need of employing long term policy measures to empower women in its true sense. Some key issues such as training, awareness and viability of the group activities need to be addressed in order to strengthen women empowerment process through micro financing. The study concluded that poor, discriminated and underprivileged women if join the groups, can come out of poverty. So, conducive environment is needed to be created in the country to give boost to women self-help groups.

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The Incremental Hedging Gains of Range-based Model under Regime Switching

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ABSTRACT

This paper proposes a range-based regime switching varying correlation model (*RBR SVC*) for dynamic futures hedging. We investigate if range-based model is superior to return-based model under regime switching. Results of hedging exercises on Deutsch Aktien (DAX), S&P 500 (SP) and Hang Seng (HS) stock index futures show that range-based model is superior to return-based model in terms of variance reductions and utility gains. The superiority of range-based model is more pronounced in the high range period. Moreover, allowing range-based model to be state-dependent improves the hedging effectiveness only for a longer hedging period.

JEL classification:

C32 - Time-Series Models

C51 - Model Construction and Estimation

G10 – General

Keywords: Range-based; GARCH model; Regime switching; Varying correlation

1. Introduction

It is well documented that the joint distribution of spot and futures return is time-varying and the classical constant hedge ratio might be inappropriate for optimal futures hedging. To incorporate this time-varying characteristic into the optimal hedge ratio estimation, a variety of multivariate GARCH models have been applied (Baillie and Myers, 1991; Kroner and Sultan, 1993; Park and Switzer, 1995; Gagnon and Lypny, 1998; Brooks et al., 2002; Alexander and Barbosa, 2008; Lien and Yang, 2008). These multivariate GARCH models estimate the time-varying minimum variance hedge ratios (MVHR) by estimating the conditional second moments of spot and futures returns. The hedging strategies developed with these GARCH models, however, do not take account of the regime switching effects caused by changing state of the market conditions (Lee and Yoder, 2007).

Lee and Yoder propose a Markov regime switching time-varying correlation GARCH (*RSVC*) model to estimate the so called regime-switching time-varying MVHR. *RSVC* accommodates both time-variation and state-dependency of the conditional correlation

between spot and futures returns. Further extensions in this line of research include incorporating the effects of unanticipated jumps in determining of optimal hedge ratios (Lee, 2009), investigating the multi-regime hedging performance with independent switching dynamic conditional correlation GARCH (Lee, 2010) and releasing the assumption of common switching dynamic for spot and futures returns with a multi-chain Markov regime switching GARCH (Lee, 2012) and so on. A general finding is that incorporating regime switching effects in GARCH models improves hedging effectiveness compared to conventional state-independent GARCH models.

Most of the existing regime switching hedging models are return-based and use close-to-close price data for hedging application. In estimating second moments, however, it is well documented that range-based strategies based on high/low range data outperform return-based strategies (Parkinson, 1980; Alizadeh et al., 2002; Brandt and Jones, 2005; Chou, 2005, 2006). Chou et al. (2009) proposes a range-based dynamic conditional correlation model and find that this model is efficient in estimating covariance matrices. Chen et al., (2012) adopt range-based dynamic conditional correlation model for hedging commodities and find that range-based model is superior to return-based models in variance reductions. Their model, however, is state-independent and does not take account of the regime switching effect.

In this article we extend Lee and Yoder's return-based Markov regime switching time-varying correlation GARCH (*RSVC*) and suggest a range-based regime switching time-varying correlation (*RBSVC*) model for dynamic futures hedging. We apply the conditional autoregressive range (*CARR*, Chou, 2005) model with lognormal density to extract the range-based volatility dynamic and construct the state-dependent relationship between the conditional volatility and range predictor. Compared to return-based *RSVC*, the proposed *RBSVC* use more informative range data. We illustrate the usefulness of the proposed *RBSVC* by applying it to Deutsch Aktien (DAX), S&P 500 (SP) and Hang Seng (HS) stock index futures.

The remainder of the article is organized as follows. The proposed range-based regime switching time-varying correlation (*RBSVC*) model is presented in section II. Section III gives the minimum variance hedge ratios and measurements of hedging performance. This is followed by discussions of data and empirical results. A conclusion ends the article.

I. Range-based Regime Switching Time-Varying Correlation (*RBSVC*) Model

Let $r_{c,t}$ and $r_{f,t}$ be the spot return and futures return, respectively. The state-dependent mean equations of *RBSVC* are specified as

$$r_{c,t} = \mu_{c,s_t} + e_{c,t,s_t} \quad (1)$$

$$r_{f,t} = \mu_{f,s_t} + e_{f,t,s_t}, \quad (2)$$

$$\mathbf{e}_{t,s_t} | \psi_{t-1} = \begin{bmatrix} e_{c,t,s_t} \\ e_{f,t,s_t} \end{bmatrix} | \psi_{t-1} \sim BN(0, \mathbf{H}_{t,s_t}), \quad (3)$$

where μ_{c,s_t} and μ_{f,s_t} are respectively the state-dependent conditional mean returns of spot and futures, e_{c,t,s_t} and e_{f,t,s_t} are state-dependent disturbances, ψ_{t-1} refers to the information available at time $t-1$ and *BN* stands for bivariate normal. The state variable

$s_t = \{1, 2\}$ is assumed to follow a first-order, two-state Markov process and the state transition probabilities are assumed to follow a logistic function such that

$$\Pr(s_t = 1 | s_{t-1} = 1) = P = \frac{\exp(p_0)}{1 + \exp(p_0)}, \quad (4)$$

$$\Pr(s_t = 2 | s_{t-1} = 2) = Q = \frac{\exp(q_0)}{1 + \exp(q_0)}, \quad (5)$$

where p_0 and q_0 are unconstrained constants that can be estimated along with other unknown parameters via maximum likelihood estimation. $\mathbf{H}_{t,s_t}$ is a state-dependent time-varying 2×2 positive definite conditional covariance matrix given by

$$\mathbf{H}_{t,s_t} = \begin{bmatrix} h_{c,t,s_t}^2 & h_{cf,t,s_t}^2 \\ h_{cf,t,s_t}^2 & h_{f,t,s_t}^2 \end{bmatrix} = \begin{bmatrix} h_{c,t,s_t} & 0 \\ 0 & h_{f,t,s_t} \end{bmatrix} \begin{bmatrix} 1 & \rho_{t,s_t} \\ \rho_{t,s_t} & 1 \end{bmatrix} \begin{bmatrix} h_{c,t,s_t} & 0 \\ 0 & h_{f,t,s_t} \end{bmatrix}, \quad (6)$$

where h_{c,t,s_t}^2 and h_{f,t,s_t}^2 are respectively the state-dependent time-varying conditional variances of spot and futures returns and ρ_{t,s_t} is the state-dependent time-varying correlation. In *RSVC* (Lee and Yoder, 2007), the volatility dynamics are assumed to follow regime switching GARCH(1,1) processes given by

$$h_{c,t,s_t}^2 = \gamma_{c,s_t} + a_{c,s_t} e_{c,t-1}^2 + b_{c,s_t} h_{c,t-1}^2, \quad (7)$$

$$h_{f,t,s_t}^2 = \gamma_{f,s_t} + a_{f,s_t} e_{f,t-1}^2 + b_{f,s_t} h_{f,t-1}^2. \quad (8)$$

Return-based volatility measure, however, suffers information inefficiency compared to the range-based volatility measure. Chiang and Wang (2011) find empirical evidence supporting the conditional autoregressive range (CARR) with lognormal distribution for stock indices. In *RBSVC*, we adopt the CARR model with lognormal density to describe the dynamic volatility structures.

Let P_t be the logarithmic price of an asset at time t . The observed high-low range in the price path during the interval of $\tau \in [t-1, t]$ is defined as $G_t = \max\{P_\tau\} - \min\{P_\tau\}$. The specification of CARR model with lognormal density is expressed as follows:

$$G_{i,t} = \lambda_{i,t} \varepsilon_{i,t}, \quad i = \{c, f\}, \quad (9)$$

$$\varepsilon_{i,t} | \psi_{t-1} \stackrel{i.i.d.}{\sim} LN\left(-\frac{\sigma_i^2}{2}, \sigma_i^2\right), \quad (10)$$

$$\lambda_{i,t} = \varpi_i + \alpha_i G_{i,t-1} + \beta_i \lambda_{i,t-1}, \quad (11)$$

where $\lambda_{i,t}$, $i = \{c, f\}$ is the conditional expected range at time t based on the information set of ψ_{t-1} up to time $t-1$. The disturbance terms $\varepsilon_{i,t}$ are assumed to follow

the lognormal distribution $LN(-\frac{\sigma_i^2}{2}, \sigma_i^2)$ specified as

$$f(\varepsilon_{i,t}; \sigma_i^2) = \frac{1}{\varepsilon_{i,t} \sqrt{2\pi\sigma_i^2}} \exp\left(-\frac{\left(\ln(\varepsilon_{i,t}) + \left(\frac{\sigma_i^2}{2}\right)\right)^2}{2\sigma_i^2}\right), \quad (12)$$

where $E(\varepsilon_{i,t} | \psi_{t-1}) = 1$ and $Var(\varepsilon_{i,t} | \psi_{t-1}) = \exp(\sigma_i^2) - 1$. The conditional density of range, $G_{i,t}$, is then given by

$$f(G_{i,t}; \vartheta_i) = \frac{1}{G_{i,t} \sqrt{2\pi\sigma_i^2}} \exp \left[-\frac{\left(\ln(G_{i,t}) - \ln(\lambda_{i,t}) + \left(\frac{\sigma_i^2}{2} \right) \right)^2}{2\sigma_i^2} \right], \quad (13)$$

where $\vartheta_i = \{\varpi_i, \alpha_i, \beta_i, \sigma_i\}$. The coefficients of ϖ 's, α 's, and β 's all have to be positive to ensure positive conditional expected ranges. After estimating CARR with lognormal density model, following Brownlees and Gallo (2010) and Wu and Liang (2011), we assume that the conditional volatility, $h_{i,t}$, $i = \{c, f\}$ is a linear function of the conditional expected range. In this paper, we further allow the relationship between conditional volatility and conditional expected range to be state-dependent. The volatility processes are specified as:

$$h_{i,t,s_t} = \alpha_{i,s_t} + \beta_{i,s_t} G_{i,t|t-1} = \alpha_{1,i,s_t} + \beta_{2,i,s_t} \hat{\lambda}_{i,t}, \quad i = \{c, f\}, \quad (14)$$

where $\hat{\lambda}_{i,t}$ is the estimated conditional expected range. The linear combination of conditional expected range is a proxy of the conditional heteroskedasticity of the returns series.

As in *RSVC*, the conditional correlations in *RBR SVC* is specified as

$$\rho_{t,s_t} = (1 - \theta_{1,s_t} - \theta_{2,s_t}) \rho + \theta_{1,s_t} \rho_{t-1} + \theta_{2,s_t} \phi_{t-1}, \quad (15)$$

where parameters θ_{1,s_t} and θ_{2,s_t} are assumed nonnegative and $\theta_{1,s_t} + \theta_{2,s_t} \leq 1$ for $s_t = \{1, 2\}$. The term ϕ_t is specified as

$$\phi_{t-1} = \frac{\sum_{j=1}^2 \varepsilon_{c,t-j} \varepsilon_{f,t-j}}{\sqrt{\left(\sum_{j=1}^2 \varepsilon_{c,t-j}^2 \right) \left(\sum_{j=1}^2 \varepsilon_{f,t-j}^2 \right)}} \quad (16)$$

where $\varepsilon_{c,t-1} = \frac{e_{c,t-1}}{\sqrt{h_{c,t}}}$ and $\varepsilon_{f,t-1} = \frac{e_{f,t-1}}{\sqrt{h_{f,t}}}$ are standardized disturbances. Although the

mathematical form of correlation process in *RBR SVC* is identical with that in *RSVC*. It is worth noting that the correlation in *RBR SVC* is affected by conditional range through the standardized disturbances terms. Equations (1)-(6) and (9)-(16) constitute the *RBR SVC* model.

The estimated conditional variances and correlation are respectively specified as

$$h_{i,t}^2 = p_{1t} (\mu_{i,1}^2 + h_{i,t,1}^2) + (1 - p_{1t}) (\mu_{i,2}^2 + h_{i,t,2}^2) - [p_{1t} \mu_{i,1} + (1 - p_{1t}) \mu_{i,2}]^2, \quad i = \{c, f\}, \quad (17)$$

$$\rho_t = \frac{1}{h_{c,t} h_{f,t}} \left\{ [p_{1t} (\mu_{c,1} \mu_{f,1} + \rho_{t,1} h_{c,t,1} h_{f,t,1}) + (1 - p_{1t}) (\mu_{c,2} \mu_{f,2} + \rho_{t,2} h_{c,t,2} h_{f,t,2})] - [p_{1t} \mu_{c,1} + (1 - p_{1t}) \mu_{c,2}] [p_{1t} \mu_{f,1} + (1 - p_{1t}) \mu_{f,2}] \right\}, \quad (18)$$

where p_{1t} is the probability of being in regime 1 at time t , defined as (Gray, 1996)

$$p_{1t} = \Pr(s_t = 1 | \psi_{t-1}) \\ = P \left[\frac{f_{1t-1} p_{1t-1}}{f_{1t-1} p_{1t-1} + f_{2t-1} (1 - p_{1t-1})} \right] + (1 - Q) \left[\frac{f_{2t-1} (1 - p_{1t-1})}{f_{1t-1} p_{1t-1} + f_{2t-1} (1 - p_{1t-1})} \right]. \quad (19)$$

The state-dependent probability distribution function f_{it} is given by

$$f_{it} = f(\mathbf{Y}_t | s_t = i, \psi_{t-1}) = (2\pi)^{-1} |\mathbf{H}_{t,i}|^{-\frac{1}{2}} \exp \left\{ -\frac{1}{2} \mathbf{e}_{t,i}' \mathbf{H}_{t,i}^{-1} \mathbf{e}_{t,i} \right\}, \quad \text{for } i = \{1, 2\}, \quad (20)$$

where $\mathbf{Y}_t = [r_{c,t} \quad r_{f,t}]'$ is a 2 by 1 vector containing spot and futures returns at time t and P and Q are transition probabilities defined in (4) and (5). The following steady-state probability of $s_1 = 1$ is used as the initial value for the recursive equation (19):

$$\Pr(s_1 = 1 | \psi_0) = \frac{1 - Q}{2 - P - Q}. \quad (21)$$

The unknown parameters in *RBR SVC* are $\theta = \{p_0, q_0, \mu_{c,s_t}, \mu_{f,s_t}, \alpha_{c,s_t}, \alpha_{f,s_t}, \beta_{c,s_t}, \beta_{f,s_t}, \theta_{1,s_t}, \theta_{2,s_t}, \rho\}$ for $s_t = \{1, 2\}$, which can be estimated by maximizing the following log-likelihood function

$$LL = \sum_{t=1}^T \log[p_{1t} f_{1t} + (1 - p_{1t}) f_{2t}]. \quad (22)$$

II. Minimum Variance Hedge Ratio (MVHR) and Measurements of Hedging Performance

The optimal time-varying minimum variance hedge ratio χ_t is estimated with the following formula:

$$\hat{\chi}_{t|t-1} = \hat{\rho}_{t|t-1} \times \frac{\hat{h}_{c,t|t-1}}{\hat{h}_{f,t|t-1}}, \quad (23)$$

where $\hat{\rho}_{t|t-1}$ is the conditional correlation of spot and futures returns and $\hat{h}_{c,t|t-1}$ and $\hat{h}_{f,t|t-1}$ are respectively the conditional spot and futures volatilities estimated with equations (17) and (18). In this paper we investigate if taking account of regime switching effect improves hedging effectiveness for range-based model. We compare the hedging performance of *RBR SVC* with range-based varying correlation (*RBVC*) model, which is a state-independent version of *RBR SVC* with all system parameters free from regime shifting. We also investigate if range-based model is superior to return-based model by comparing the hedging performance of *RBR SVC* with return-based regime switching varying correlation GARCH (*RSVC*, Lee and Yoder, 2007) and comparing the hedging performance of *RBVC* with return-based varying correlation GARCH (*VC*, Tse and Tsui, 2002). We also use traditional constant correlation GARCH (*CC*) as a benchmark to investigate the time-varying correlation effect.

Hedger chooses a hedging strategy to minimize the variance of the hedged portfolio returns or equivalently maximize the percentage variance reductions compared to unhedged position. The variance of the hedged portfolio return is given below:

$$\text{Var}(r_{c,t} - \hat{\chi}_{t|t-1} r_{f,t}), \quad (24)$$

where $\hat{\chi}_{t|t-1}$ is the estimated optimal hedge ratio defined in (23). We also investigate the economic benefits of hedging strategies by calculating expected utility. Following Kroner and Sultan (1993), Lee and Yoder (2007) and Lee (2010), we assume that hedger has a mean-variance expected utility given by

$$E[U(r_{p,t})|\psi_{t-1}] = E[r_{p,t}|\psi_{t-1}] - \eta \text{Var}(r_{p,t}|\psi_{t-1}), \quad (25)$$

where η is the coefficient of absolute risk aversion and $r_{p,t}$ is the hedged portfolio return. A mean-variance expected utility-maximizing hedger will choose the hedging strategy that provides the highest expected utility.

We further test the statistical superiority of a model over alternatives by performing Diebold-Mariano (1995) and West (1996) (DMW) tests given by

$$DMW = \frac{\bar{d}}{\sqrt{N^{-1} \hat{V}}}, \quad (26)$$

where $\hat{V} = N^{-1} \sum_{t=R+1}^T (\hat{d}_{t+1} - \bar{d})^2$, $\bar{d} = N^{-1} \sum_{t=R+1}^T \hat{d}_{t+1}$ and R , N and T are respectively the length of estimation period, the length of the prediction period and the length of total sample period. $\hat{d}_t = f(v_{A,t}) - f(v_{B,t})$, where f is the square error loss function with $v_{A,t}$ and $v_{B,t}$ the hedged portfolio returns of model A and model B. McCracken's adjusted critical values (McCracken, 2007) are used for nested models and traditional critical values are applied for non-nested models. The null hypothesis is that the predictive ability of model B is not superior to model A

III. Data and Empirical Results

We investigate the hedging superiority of the proposed range-based model by applying it to three nearby stock index futures including Deutsche Aktien (DAX), S&P 500 (SP) and Hang Seng (HS) index futures. The data sample investigated is from January 1995 to December 2011. Estimation of all models was conducted using weekly data from January 1995 to December 2007; the remaining data are used for out-of-sample analysis. As shown in figure 1, in recent years, the average percentage range is relatively high after year 2008. Higher range implies higher variation in price and consequently the higher hedging demand for agent's spot holdings. Because the average percentage range in year 2008 is significantly high in out-of-sample hedging period for all three stock indices, we also investigate the hedging performance in this specific year. In this paper we refer the year 2008 as the first hedging period and the years from 2008 to 2011 as the second hedging period.

Table I shows the estimates of unknown parameters of *RBR SVC* and its nested model, *RBVC*. Parameters are estimated by maximizing the log-likelihood functions in (22) using numerical constrained optimization procedure in GAUSS. As shown in table I all estimates of μ 's, the conditional mean returns, are small. The largest value is 0.036 for the Hang Seng index futures in state 2 estimated with *RBR SVC*. All these conditional mean returns, however, are significant. In the volatility equation, larger α 's and β 's imply higher level of volatility. We find that α 's and β 's are larger in the second state

than in the first state indicating that state 2 is the high volatility state. This is illustrated in figure 2 and figure 3. To save space, only those figures for DAX are illustrated here. The regime probability of being in state 1 is given in Figure 4. In the correlation equation, θ_1 reflects the persistence in correlation and θ_2 reflects the effects of temporary correlation shocks. We find that regime with a higher correlation persistence normally associates with a lower strength of temporary correlation shocks and vice versa. Figure 5 shows the estimates of state-dependent correlations with *RBRVC* for DAX. State 2 correlation captures the long term slower moving correlation dynamic of spot and futures returns and state 1 correlation captures the effect of short term correlation shocks.

Table II reports the hedging effectiveness of *RBVC*, *VC* and *CC*. Overall the proposed *RBVC* exhibits superior hedging effectiveness for both first and second hedging periods. Taking DAX for instance, the variance of unhedged portfolio in the first hedging period is equal to 32.1112. If the hedger uses the benchmark *CC* hedging, the variance is 0.2378 or a 99.257% variance reduction. If the hedger uses the *VC* hedging, the variance is 0.3306 or a 98.970% variance reduction. *VC* does not create hedging gains over *CC* in the case of DAX. If hedger uses *RBVC* hedging, the variance is 0.2144 or a variance reduction of 99.332%. The improvements of *RBVC* over *CC* and *VC* in the first hedging period are equal to 0.039% and 0.325%, respectively. Similar results are also found in the second hedging period for the case of DAX. In the case of S&P 500 and HS, *RBVC* also shows better hedging effectiveness than *CC* and *VC*. In general, we find that range-based model is superior to return-based model in terms of variance reductions both in the first and second periods. Figure 6 shows the hedge ratios estimated with *VC* and *RBVC*.

We further investigate the economic significance of the superiority of *RBVC* by calculating the utility gains. Following the convention in this line of research (Lafuente and Novales, 2003, Lee 2009, 2010), we assume that the coefficient of absolute risk aversion η is set equal to 4. Taking DAX for instance, if hedger uses *CC* hedging, the average weekly utility is equal to $U_{CC} = -0.977$. With *RBVC* hedging, the average weekly utility is $U_{RBVC} = -0.886$. The hedger's net benefit from using *RBVC* hedging over *CC* hedging is equal to $U_{RBVC} - U_{CC} - C = 0.048 - C$ (in percentage), where C stands for the extra transaction cost from dynamic rebalancing using *RBVC* hedging over *CC* hedging. A mean-variance expected utility-maximizing hedger will adopt *RBVC* hedging if the weekly rebalancing cost of *RBVC* over *CC* is less than 0.048%. Similarly, hedger will adopt *RBVC* hedging instead of *VC* hedging if the weekly rebalancing cost of *RBVC* over *VC* is less than 0.371%. A typical round trip transaction cost is around 0.02% to 0.04% (Lee, 2010). As shown in table II, we find that most of the utility gain of *RBVC* relative to *CC* and *VC* are larger than 0.04%. This shows the economic significant of the superiority of *RBVC* over *CC* and *VC*. The utility gain of *RBVC* is more pronounced in the first hedging period (significantly high range period) than in the second hedging period.

To test the statistical significance of the superiority of *RBVC* over *CC* and *VC*, we perform *DMW* test. Table II reports the *DMW* test statistics of no superiority of *RBVC* over *CC* and *VC*. In the first hedging period, *RBVC* is superior to *CC* for the case of DAX and HS and superior to *VC* for the case of HS at the conventional level. Although not all

statistics are significant, all of them are positive. Positive statistics indicate that there is a tendency for *RBVC* to outperform *CC* and *VC*. Again, we find that the statistical significance of the superiority of *RBVC* is more pronounced in the first hedging period than in the second hedging period.

Table III reports the hedging effectiveness of *RBR SVC* and return-based regime switching varying correlation GARCH model (*RSVC*). We find that *RBR SVC* is superior to *RSVC* for all cases in the first hedging period in terms of variance reductions. In the second hedging period, *RBR SVC* is superior to *RSVC* for the cases of S&P 500 and HS but inferior to *RSVC* for the case of DAX. Based on the utility gains and DMW statistics, we find that *RBR SVC* is superior to *RSVC* in the first hedging period and is no worse than *RSVC* in the second period. In general, the superiority of *RBR SVC* over *RSVC* is more pronounced in the significantly high range period. Figure 7 shows the hedge ratios estimated with *RBR SVC* and *RSVC*.

We are also interested in investigating if allowing the range-based model to be state-dependent improves the hedging effectiveness. The hedging performances of *RBR SVC* and *RBVC* are reported in table IV. In the first hedging period, *RBVC* has a tendency to outperform *RBR SVC*. *RBR SVC* has better performance than *RBVC* for the case of HS. The superiority, however, is statistically insignificant. In the second period, *RBR SVC* is superior to *RBVC* for all cases and the superiority is statistically significant. Generally speaking, range-based regime switching model exhibits good hedging performance for a longer hedging period.

IV. CONCLUSIONS

This paper attempts to investigate the incremental hedging gains of range-based model under regime switching. We propose a range-based regime switching time-varying correlation (*RBR SVC*) model for dynamic futures hedging. *RBR SVC* uses conditional autoregressive range model with lognormal density to extract the range-based volatility dynamic and construct the state-dependent relationship between the conditional volatility and range predictor. We investigate if range-based model is superior to return-based model and if allowing the range-based model to be state-dependent improves the hedging effectiveness.

We apply *RBR SVC* to three stock index futures including S&P 500 (SP), Deutsche Aktien (DAX) and Hang Seng (HS) index futures. Empirical hedging results reveal that *RBVC* is superior to return-based *CC* and *VC* and *RBR SVC* is superior to return-based *RSVC* in terms of variance reduction. Based on the utility gains and DMW statistics, we find that there is a tendency for range-based models to be superior to return-based models and the superiority is more pronounced in significantly high range period. We also find that allowing the range-based model to be state-dependent improves hedging effectiveness only for a longer hedging period.

Table I
Estimates of Unknown Parameters of RBVC and RBRVC
Estimation period is from January 1995 to December 2007

	DAX		S&P 500		HS	
	RBVC	RBRVC	RBVC	RBRVC	RBVC	RBRVC
	Mean Equation		Mean Equation		Mean Equation	
P_0		1.815 (0.256)***		1.873 (0.212)***		3.639 (0.390)***
Q_0		0.511 (0.255)**		-0.757 (0.402)**		0.337 (0.529)***
μ_{c1}	0.002 (0.000)***	0.008 (0.000)***	0.003 (0.000)***	0.003 (0.000)***	0.002 (0.000)***	0.002 (0.001)***
μ_{c2}		-0.003 (0.002)**		0.007 (0.001)***		0.034 (0.011)***
μ_{f1}	0.002 (0.000)***	0.008 (0.000)***	0.003 (0.000)***	0.003 (0.000)***	0.002 (0.001)***	0.002 (0.001)***
μ_{f2}		-0.002 (0.001)*		0.007 (0.001)***		0.036 (0.013)***
	Volatility Equation		Volatility Equation		Volatility Equation	
	RBVC	RBRVC	RBVC	RBRVC	RBVC	RBRVC
	Volatility Equation		Volatility Equation		Volatility Equation	
α_{c1}	0.013 (0.002)***	0.008 (0.001)***	0.003 (0.001)**	0.005 (0.001)***	0.005 (0.002)***	0.010 (0.002)***
α_{c2}		0.029 (0.005)***		0.013 (0.012)		0.031 (0.060)
α_{f1}	0.011 (0.002)***	0.008 (0.001)***	0.003 (0.001)***	0.006 (0.001)***	0.004 (0.002)**	0.010 (0.002)***
α_{f2}		0.028 (0.005)***		0.014 (0.011)		0.040 (0.072)
β_{c1}	0.385 (0.036)***	0.319 (0.037)***	0.585 (0.046)***	0.379 (0.048)***	0.621 (0.047)***	0.438 (0.048)***
β_{c2}		0.354 (0.098)***		0.979 (0.423)**		1.228 (0.956)*
β_{f1}	0.412 (0.042)***	0.330 (0.039)***	0.555 (0.045)***	0.363 (0.047)***	0.654 (0.052)***	0.447 (0.052)***
β_{f2}		0.396 (0.106)***		0.933 (0.395)***		1.144 (1.282)***
	Correlation Equation		Correlation Equation		Correlation Equation	
	RBVC	RBRVC	RBVC	RBRVC	RBVC	RBRVC
	Correlation Equation		Correlation Equation		Correlation Equation	
θ_{11}	0.964 (0.015)***	0.960 (0.013)***	0.992 (0.001)***	1.000 (0.006)***	0.981 (0.004)***	0.996 (0.006)***
θ_{12}		1.000 (0.008)***		0.997 (0.004)***		0.990 (0.017)***
θ_{21}	0.014 (0.006)**	0.040 (0.014)***	0.004 (0.001)***	0.000 (0.005)	0.013 (0.003)***	0.003 (0.008)
θ_{22}		0.000 (0.007)		0.003 (0.003)		0.010 (0.010)
ρ	0.991 (0.003)***	0.941 (0.015)***	1.000 (0.004)***	0.726 (0.047)***	0.999 (0.007)***	0.777 (0.268)***

Note: Figures in parentheses are standard errors and *, ** and *** indicate significance at the 10% level, 5% level and 1% level, respectively.

Table II
Hedging Effectiveness of RBVC, VC and CC Models

	First Hedging Period ¹					Second Hedging Period ¹						
	Variance of Hedged Portfolio Return	Percentage Variance Reduction ²	Improvement of RBVC over Alternatives ³	Expected Weekly Utility ⁴	Utility Gain of RBVC over Alternatives ⁵	DMW ⁶	Variance of Hedged Portfolio Return	Percentage Variance Reduction ²	Improvement of RBVC over Alternatives ³	Expected Weekly Utility ⁴	Utility Gain of RBVC over Alternatives ⁵	DMW ⁶
DAX												
Unhedged	32.1112						17.8659					
CC	0.2387	99.257%	0.039%	-0.977	0.048	1.434*	0.1352	99.243%	0.083%	-0.535	0.053	1.546*
VC	0.3306	98.970%	0.325%	-1.300	0.371	1.267	0.1471	99.177%	0.149%	-0.573	0.090	0.997
RBVC	0.2144	99.332%		-0.886			0.1239	99.306%		-0.497		
S&P 500												
Unhedged	22.4747						12.6602					
CC	0.4682	97.917%	0.308%	-1.849	0.249	0.526	0.1897	98.502%	0.185%	-0.746	0.080	0.620
VC	0.4283	98.094%	0.131%	-1.698	0.098	0.300	0.1877	98.518%	0.169%	-0.739	0.074	0.706
RBVC	0.3986	98.226%		-1.605			0.1688	98.667%		-0.677		
HS												
Unhedged	28.4263						16.7208					
CC	0.5244	98.155%	0.172%	-2.183	0.203	1.708**	0.3153	98.114%	0.050%	-1.284	0.043	0.331
VC	0.5239	98.157%	0.171%	-2.166	0.186	1.614*	0.3137	98.124%	0.040%	-1.277	0.036	0.157
RBVC	0.4758	98.326%		-1.993			0.3117	98.136%		-1.260		

1. First hedging period is year 2008 and second hedging period is from 2008 to 2011.

2. Percentage variance reductions are calculated as the differences of variance of unhedged position and estimated variances of alternative models over variance of unhedged position multiplied by 100.

3. Improvement of RBVC over alternatives is defined as the differences of the percentage variance reduction of RBVC and the percentage variance reduction of alternative models.

4. Expected weekly utility is calculated based on equation (25)

5. Utility gain of RBVC over alternatives is defined as the differences of the expected utility of RBVC and the expected utilities of alternative models.

6. DMW stands for the Diebold-Mariano-West test statistics of no superiority of RBVC over alternative models. *, ** and *** indicate significance at the 10% level, 5% level and 1% level, respectively.

Table III
Hedging Effectiveness of RBR SVC and RSVC Models

	First Hedging Period ¹						Second Hedging Period ¹					
	Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return		
	Percentage Variance Reduction ²	Improvement of RBR SVC over RSVC ³	Expected Weekly Utility ⁴	Utility Gain of RBR SVC over RBVC ⁵	DMW ⁶		Percentage Variance Reduction ²	Improvement of RBR SVC over RSVC ³	Expected Weekly Utility ⁴	Utility Gain of RBR SVC over RBVC ⁵	DMW ⁶	
RSVC	0.2442	99.240%	0.056%	0.047	0.911	DAX	0.1145	99.359%	-0.033%	-0.447	-0.036	-0.648
RBR SVC	0.2262	99.296%	-0.929				0.1204	99.326%		-0.482		
						S&P 500						
RSVC	0.5886	97.381%	0.844%	0.750	1.500*		0.2137	98.312%	0.374%	-0.846	0.180	1.479*
RBR SVC	0.3989	98.225%					0.1663	98.687%		-0.666		
						HS						
RSVC	0.5224	98.162%	0.165%	0.208	1.324*		0.3122	98.133%	0.031%	-1.274	0.033	0.423
RBR SVC	0.4754	98.327%	-1.980				0.3070	98.164%		-1.241		

1. First hedging period is year 2008 and second hedging period is from 2008 to 2011.

2. Percentage variance reductions are calculated as the differences of variance of unhedged position and estimated variances of alternative models over variance of unhedged position multiplied by 100.

3. Improvement of RBR SVC over RSVC is defined as the differences of the percentage variance reduction of RBR SVC and the percentage variance reduction of RSVC.

4. Expected weekly utility is calculated based on equation (25)

5. Utility gain of RBR SVC over RBVC is defined as the differences of the expected utility of RBR SVC and the expected utilities of RSVC.

6. DMW stands for the Diebold-Mariano-West test statistics of no superiority of RBR SVC over RSVC. *, ** and *** indicate significance at the 10% level, 5% level and 1% level, respectively.

Table IV
Hedging Effectiveness of *RSRBVC* and *RBVC* Models

	First Hedging Period ¹						Second Hedging Period ¹					
	Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return			Variance of Hedged Portfolio Return		
	Percentage Variance Reduction ²	Improvement of <i>RBRSVC</i> over <i>RBVC</i> ³	Expected Weekly Utility ⁴	Utility Gain of <i>RBRSVC</i> over <i>RBVC</i> ⁵	DMW ⁶		Percentage Variance Reduction ²	Improvement of <i>RBRSVC</i> over <i>RBVC</i> ³	Expected Weekly Utility ⁴	Utility Gain of <i>RBRSVC</i> over <i>RBVC</i> ⁵	DMW ⁶	
<i>RBVC</i>	0.2144	99.332%	-0.886	-0.043	-1.351**	DAX	99.332%	0.020%	-0.497	0.015	1.327**	
<i>RBRSVC</i>	0.2262	99.296%	-0.929				99.326%	0.020%	-0.482			
						S&P 500						
<i>RBVC</i>	0.3986	98.226%	-1.605	0.005	-0.047		98.667%	0.020%	-0.677	0.011	1.436***	
<i>RBRSVC</i>	0.3989	98.225%	-1.599				98.687%		-0.666			
						HS						
<i>RBVC</i>	0.4758	98.326%	-1.993	0.013	0.085		98.136%	0.028%	-1.260	0.018	0.625*	
<i>RBRSVC</i>	0.4754	98.327%	-1.980				98.164%		-1.241			

1. First hedging period is year 2008 and Second hedging period is from 2008 to 2011.

2. Percentage variance reductions are calculated as the differences of variance of unhedged position and estimated variances of alternative models over variance of unhedged position multiplied by 100.

3. Improvement of *RBRSVC* over *RBVC* is defined as the differences of the percentage variance reduction of *RBRSVC* and the percentage variance reduction of *RBVC*.

4. Expected weekly utility is calculated based on equation (25)

5. Utility gain of *RBRSVC* over *RBVC* is defined as the differences of the expected utility of *RBRSVC* and the expected utilities of *RBVC*.

6. DMW stands for the Diebold-Mariano-West test statistics of no superiority of *RBRSVC* over *RBVC*. The formula for DMW statistic is shown in equation (26) with the adjusted critical values for nested models tabulated in McCracken (2007). The N/R ratio is 0.077 and 0.308 for the first and second hedging period, respectively. The number of parameters to be estimated for *RSRBVC* and *RBVC* are 19 and 9, respectively. The critical values are tabulated for $N/R = 0, 0.2$ and 0.4 , and we construct the values for $N/R = 0.077$ and $N/R = 0.308$ by interpolation. *, **, and *** indicate significance at the 10% level, 5% level and 1% level, respectively.

Figures

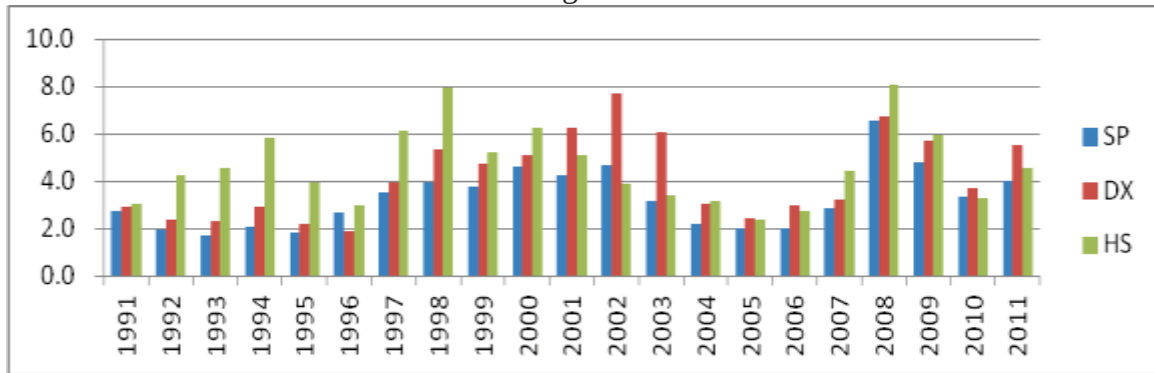


Figure 1 Average Percentage Range for SP, DAX and HS Index Futures

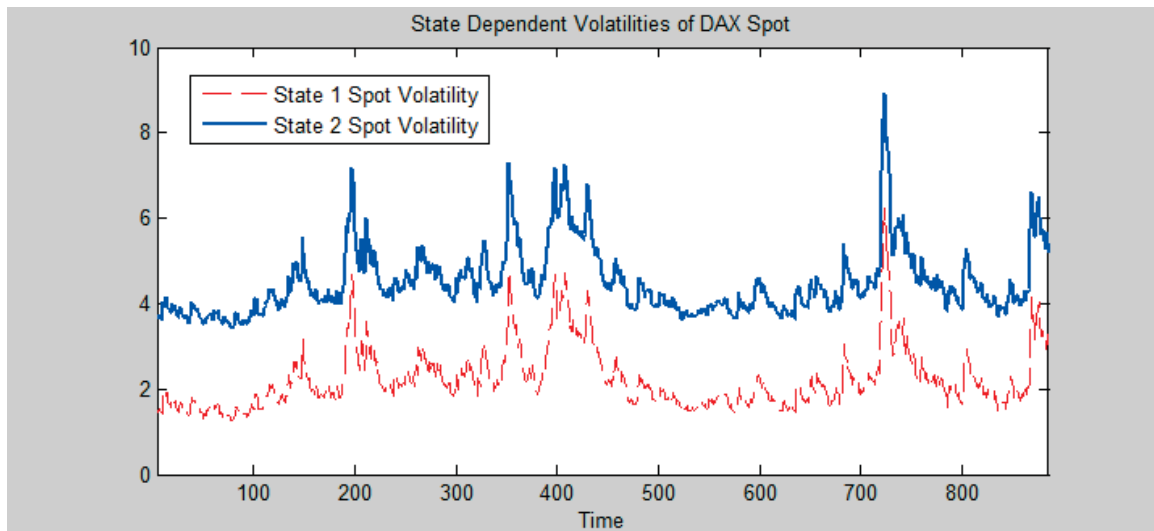


Figure 2 Estimates of State-dependent Volatilities with *RBR SVC* for DAX Spot

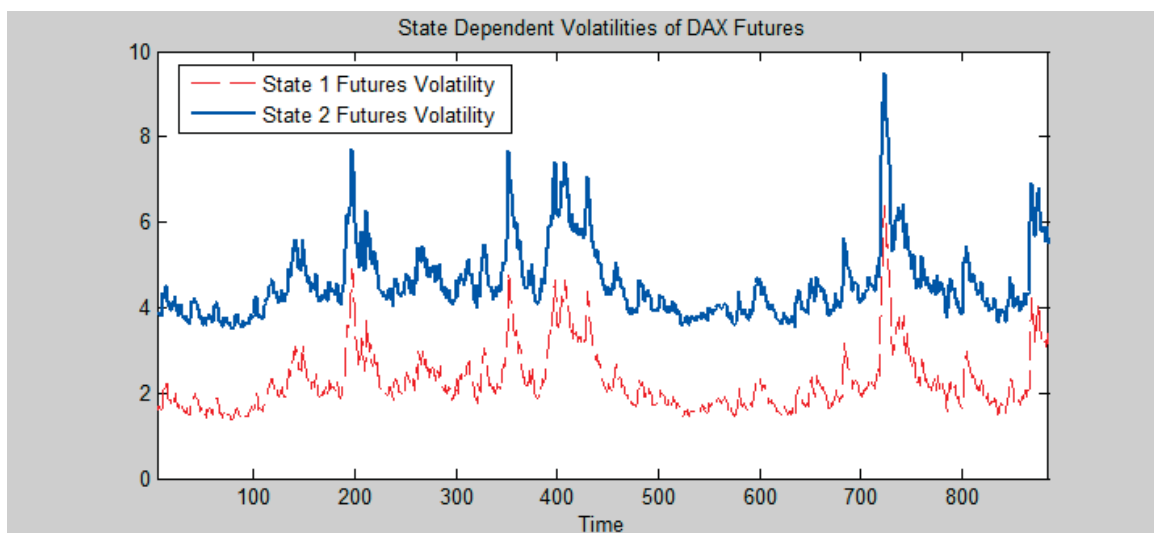


Figure 3 Estimates of State-dependent Volatilities with *RBR SVC* for DAX Futures

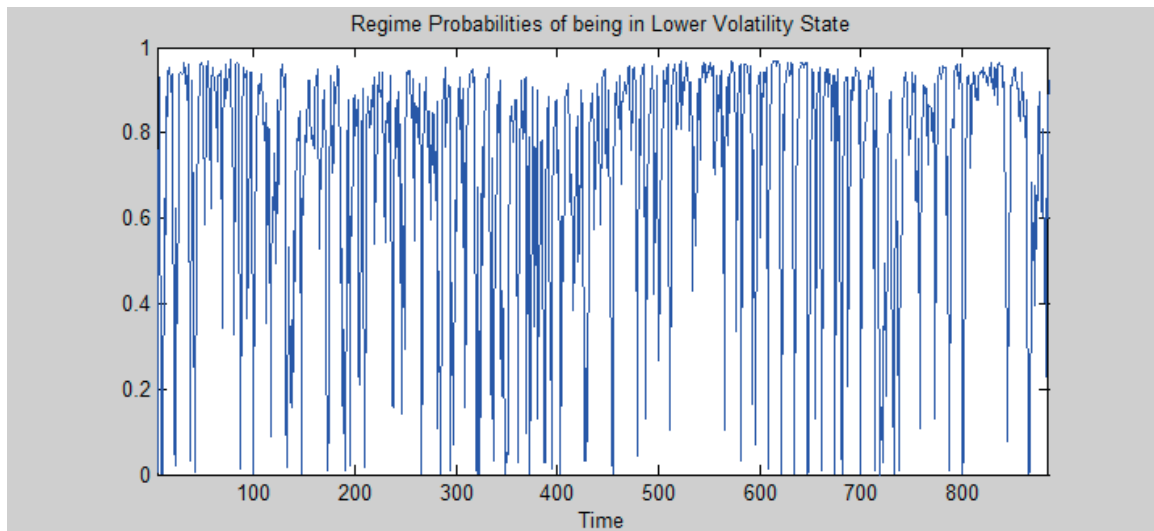


Figure 4 Regime Probabilities of being in State 1 Estimated with *RBSVC* for DAX

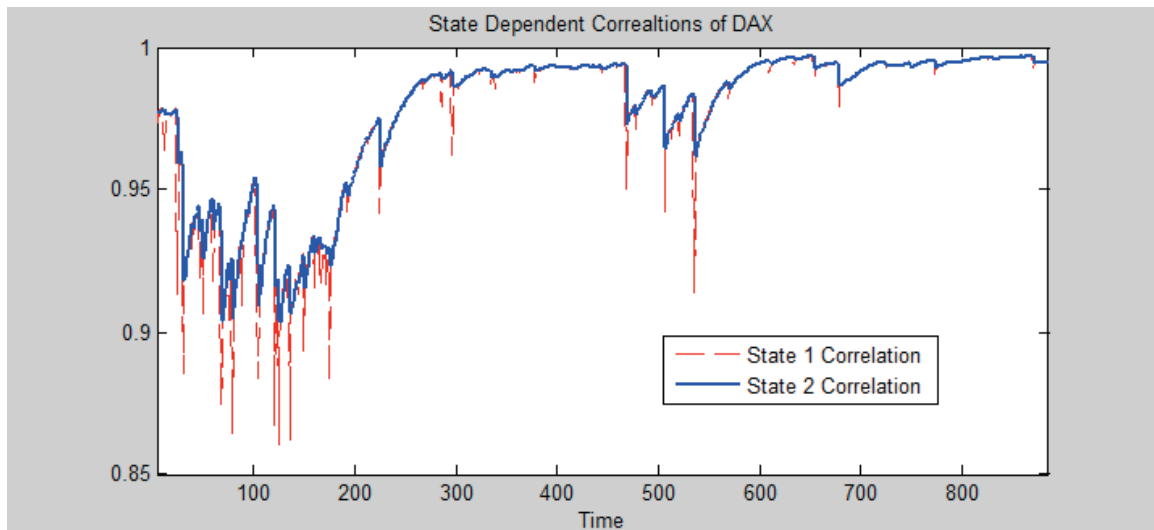


Figure 5 Estimates of State-dependent Correlations with *RBSVC* for DAX

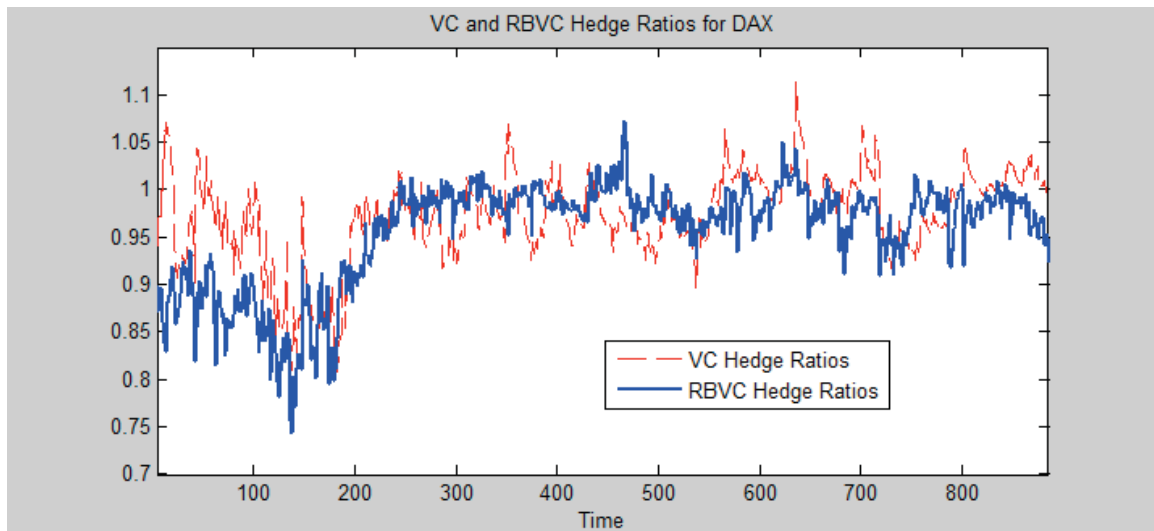


Figure 6 Hedge Ratios Estimated with VC and RBVC for DAX

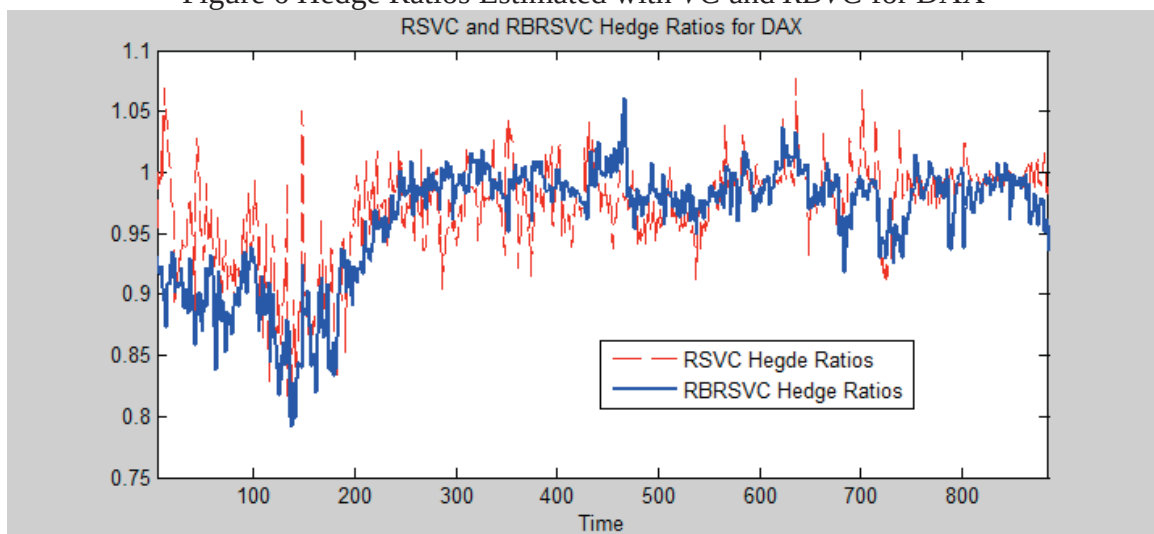


Figure 7 Hedge Ratios Estimated with RSVC and RBR SVC for DAX

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EVALUATING INVESTMENT PROJECTS WITH REAL OPTIONS: AN APPLICATION WITHIN MINING INDUSTRY

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ABSTRACT

Uncertainty is the very basic point for today's global business world. A world of complete and total certainty is always ideal for planning. Under real options approach, projects are evaluated in a dynamic way which is the most important advantage of real options approach over the other investment evaluation techniques. For instance, while projects are either accepted or rejected under the net present value method, there is the choice of project deferral in the real options approach in addition to the other choices. In this paper a mine investment in Russia has been analyzed. This analysis has been done by traditional valuation techniques and investment seemed to be inadequate. From this stage the value of option to defer has been calculated and searched for ideal investment timing. The main goal of the study is to introduce real options and to consider whether it is an alternative to traditional methods or not. As a result, real options method is superior to the traditional methods in a managerial sense and instead of being an alternative; it is complementary in a technical sense.

Key words: net present value, real option, investment project

JEL: D53, E44, G11

1. INTRODUCTION

The main duty of the managers has become the management of the uncertainties in the modern investment world and one can observe that the most successful managers are those who are competent not only in eliminating the uncertainties but also in managing those certainties.

Flexibility in variable market conditions can be achieved when the manager is provided with the new and effective information. The uncertainties encountered during the evaluation of investments partially elucidated through wait and see approach to obtain new information. The experienced and intuitive managers often manage this deferral process based on a set of data that is not analytical. Using the theory of options valuation of investments at this point provides the flexibility that the managers are looking for. In this way, the inadequacies of traditional investment valuation methods are eliminated.

Option theory, proactively responding to the uncertainties encountered during the evaluation of investment managers, helps decision-making. Aside from eliminating these difficulties encountered in real life, the options theory includes investment failure and the uncertainty of future events in the decision making process and thus, provides managers a set of data for decision-making.

The traditional investment valuation methods, while adhering to a predetermined static scenario, evaluates the uncertainties that may affect the investment value of money or other non-strategic elements without taking into account the size of the monetary values of its investments. These methods have limited use in today's market conditions. Since it provides an insufficient depth to the decision-maker, the simple analysis is nowhere near a comprehensive road map to draw.

The second part of the study includes a literature study that was carried out on real options and their applications. In the third section, the main focus will be on the methodology used in analyzing a mining investment in Russia. This analysis was carried out with the first of the traditional valuation methods. After this stage, the value of the option to postpone the investment is calculated to determine the ideal time to invest. The results in the fourth section give some suggestions for solutions.

2. LITERATURE REVIEW

Real options are related to tangible assets, commodities and objects. They are theoretically derived from financial options and are applied to investment decisions of firms. According to Jonathan Mun (2003) real option is an integrated solution and a systematic approach that uses the financial option theory, econometric analysis, management science, decision science, statistics, and econometric models to determine the actual physical valuation of securities. The concept of real options had emerged in the 1960s and 1970s in the United States as a result of the study of government investments that cannot be compensated. The real option method has been used in many areas in subsequent years and in a broader context. This is one of the areas of the energy and natural resource investments. In general, there is an option value even when there is an irreversible, uncertain flow of information while continuing to invest in the areas of investment (Wang, 2002).

In the late 1970s application studies on the theory of real options have emerged. Tourinho (1979) has become the pioneer of the users of real options in the field of natural resources, while Brennan and Schwartz (1985) studied on the operation of the mine using option models. Kester (1984) made the theoretical structure of growth options a bit more strategic and tried to show how to implement them investment project in his article published in Harvard Business Review titled "Today's Options for Tomorrows Growth" (Brach, 2003). Brennan and Schwartz (1985) studied the evaluations of the company-owned gold mine reserves and concluded that gold-mining is at its best when done during the high levels of gold prices. Paddock et al. (1988) used option theory to make experiments on investments at MIT energy labs. Bjerksund and Eker (1990) worked on the model of real options in the oil industry. Herbelot (1992) worked on how much thermal energy sources may cause damage to the environment. Amram and Kulatilaka (1999) told of financial options and real options in the book they have published. This book gives some real options in practice, however there is no detailed information regarding the valuation of real options; it only gives an idea of how much be applied in a comprehensive manner. The book describes that in order to put forward an option, oil exploration companies rents the land. If the exploration work is successful, the company has the option of oil extraction and digging oil wells. If the exploration activities would result in a negative way, the company has the option to stop the project. Option enhances the value of the discovery project because it holds the potential for profitability at the highest level of investment project by reducing the

potential losses. Trigeorgis (1999) used real options model of R & D projects in many areas as global warming and environmental policies, e-commerce, flexible manufacturing systems, mergers. Howell et al. (2001) has made an extensive introduction to those who are not familiar with it. Copeland and Antikarov (2001) published "Real Options: A Practitioner's Guide" which initiated new discussions on real options. The basic claim of the book is the "Market Asset Negation" concept. This concept basically advocates that the present value of cash flows of a project without flexibility depends on the project finance transactions in the market and they consider it to be the most objective method to predict this. In general, they have developed a method based on this concept for the valuation of real options that are not traded. Boer (2002) in his study tried to explain real options method without resorting to mathematical models, and by drawing attention to the practical application areas, he aimed to inform managers of companies that have the power to decide. Louberge et al. (2002) studied the extent of damage that the nuclear energy sources cause the environment by using the real options method.

3. METHODOLOGY AND APPLICATION

This section of the study gives the necessary methods to analyze the national coal mining firm's investment project to invest in Russia. The evaluation of investment projects in the investment decision are done by considering the rules to be followed when analyzing the investment and the macro-evaluations have been studied in the case of investment. Investment project has been evaluated by both the conventional net present value and real options. Microsoft Excel is preferred to evaluate the investment project because of the financial instruments and standard statistical analysis that the product embodies.

Investor wants to assess investment opportunities in this field taking into account the demand for imported coal in Turkey in the near future. In this context, the company officials investigate the major countries around the world which are engaged in export of imported coal in terms of the past relationships, geographical proximity, coal quality, taking into account the positions of projects in Turkey and thus, the investor has chosen Russia as its target country for investment. The investment firm, taking into account the different sectors, has given this decision for himself and wanted to take a step in the mining sector with a new sector.

3.1 Traditional valuation methods

Investment firm-owned is evaluated by the project net present value method, the payback period and internal rate of return method. The basic assumptions used in valuation are as follows:

- Set-up time required for the investment life of 15 years, and investment is 1.5 years.
- Investment for 6-month periods within the total of 30 semesters (15 years) will be discussed. The selection of 6-month periods will be decided by the investment firm executives and advisers in the meetings will do to check the status determined by the market. Every 6 months the relevant managers and consultants will come together for an investment decision.
- The initial investment cost of the project is USD 550 million. The cost of investment includes licenses, permits, fees for the construction of machinery and equipment. The investment cost is assumed to increase by 2% each semester due to the demand for coal production equipment in the world. Coal production was assumed to be clear 5 million tons if worked at full capacity.

- Coal production cost per ton is 56 USD. The breakdown of the production costs are as follows;
 - o 24 USD / ton for domestic transportation costs,
 - o 16 USD / ton for cost of removing from the stove,
 - o 14 USD for maritime transport,
 - o 2 USD for port loading.
- For the first term selling price of coal is taken as 60 USD / ton.
- According to the production of coal, coal consumption will cause more rapid rise in coal prices 2% and is estimated to increase each semester. Risk-free rate is assumed to be 8% with respect to US bonds and is constant whereas the discount factor is 12% due to cost of equity of the firm, profitability ratios in the mining sector and possible risks associated with the investment project.

Under the above assumptions, the valuation for coal mine project is given in Table 3.1.

Table 3.1 : Valuation with net present value method

Period	Year	Production volume ('000 ton)	Sale price (USD/ton)	Sales revenue ('000 UDS)	Cost ('000 USD)	Cash Flow ('000 USD)	Discounted cash flow ('000 USD)
0	0	0	0	0	0	0	0
1	0,5	0	0	0	0	0	0
2	1	0	0	0	0	0	0
3	1,5	1.500	60	90.000	84.000	6.000	5038
4	2	2.000	61,2	122.400	112.000	10.400	8238
5	2,5	2.000	62,42	124.848	112.000	12.848	9601
6	3	2.500	63,67	159.181	140.000	19.181	13522
7	3,5	2.500	64,95	162.365	140.000	22.365	14874
8	4	2.500	66,24	165.612	140.000	25.612	16069
9	4,5	2.500	67,57	168.924	140.000	28.924	17120
10	5	2.500	68,92	172.303	140.000	32.303	18038
11	5,5	2.500	70,3	175.749	140.000	35.749	18832
12	6	2.500	71,71	179.264	140.000	39.264	19513
13	6,5	2.500	73,14	182.849	140.000	42.849	20089
14	7	2.500	74,6	186.506	140.000	46.506	20570
15	7,5	2.500	76,09	190.236	140.000	50.236	20962
16	8	2.500	77,62	194.041	140.000	54.041	21273
17	8,5	2.500	79,17	197.922	140.000	57.922	21510
18	9	2.500	80,75	201.880	140.000	61.880	21679
19	9,5	2.500	82,37	205.918	140.000	65.918	21787
20	10	2.500	84,01	210.036	140.000	70.036	21838

21	10,5	2.500	85,69	214.237	140.000	74.237	21837
22	11	2.500	87,41	218.522	140.000	78.522	21790
23	11,5	2.500	89,16	222.892	140.000	82.892	21701
24	12	2.500	90,94	227.350	140.000	87.350	21574
25	12,5	2.500	92,76	231.897	140.000	91.897	21412
26	13	2.500	94,61	236.535	140.000	96.535	21219
27	13,5	2.500	96,51	241.266	140.000	101.266	20999
28	14	2.500	98,44	246.091	140.000	106.091	20755
29	14,5	2.500	100,41	251.013	140.000	111.013	20488
30	15	2.500	102,41	256.033	140.000	116.033	20203

The sum of the discounted cash flows is \$ 522,529,830, while the initial investment cost is \$ 550,000,000 so investment project's net present value becomes (\$ -27,470,170). After the first investment of the project will occur, as long as the future cash flows are equal to the first investment, the total amount of initial investment payback period is 9.06. The present values of cash flows provided by investing the sum of the amount of initial investment were calculated as 11.40% which is in other terms the internal rate of return.

Not taking investment options into account makes the net present value negative when calculated by using the traditional valuation techniques. Managers often do not want to enter a certain level of responsibility in this case and decide not to invest. However, considering the later stages of the project which embodies the strategic elements of the project, it is also believed that it will turn into a profitable investment.

3.2 Calculation of the value of the option

As rights are owned by investment firm, investment project does not have to be performed today. Investors have the option to postpone the investment and the actual value of this investment is the sum of the net present value and the option of deferral. Özoğul (2006) has chosen to use real options method to evaluate real assets investments. In his study he concluded that Black&Scholes option pricing is more suitable than binomial pricing due to its relatively easy calculation and convergence of binomial model in higher steps. American type is suitable for modeling due to the fact that the investment firm can carry on the investment at any time. In the standard Black&Scholes option pricing model, while offering a solution to the analytical valuation of European-type options, the valuation of American type options are not appropriate. Özoğul (2006) used Black approach to overcome this difficulty. Black approach is the approximate value of American-type option expressed as the "n" European-type option. It is calculated in European-type option with the highest value of n, which will be considered as American type option. In other words, the European-type option with the highest value will maintain the ideal timing of the investment to be implemented. The project embodies the value of an option that should be taken into account for calculating the parameter variation.

The main issues that create uncertainty in terms of the project are the cash flows. The amount of production is not exactly variable so the cash flows are directly associated with coal prices. The historical variability of coal utilized in the calculation of price volatility and logarithmic variance of relative prices will be calculated. Lewis et al. (2008) had utilized the

measurement method proposed for the study of real options. The historical volatility calculation method is presented in Appendix. As a result of the calculation 28.65% is determined as the annual standard deviation.

Option valuation assumptions remained the same as the underlying assumptions in the analysis of net present value. Basic parameters are presented in Table 3.2.

Table 3.2 : Key parameters used in option valuation

Parameter	Value
Investment cost (USD)	550.000.000
Production cost (USD/ton)	56
Price of coal (USD/ton)	60
Periodical increase of the investment cost	2,00%
Expected increase in coal prices	2,00%
Risk-free interest rate	8,00%
Discount factor	12,00%
Uncertainty (σ)	28,65%

Option value was calculated for each period benefiting from the following formulas;

$$C = S N(d_1) - X e^{-rt} N(d_2) \quad (3.1)$$

$$d_1 = [\ln(S/X) + (r + \sigma^2 / 2) T] / \sigma \sqrt{T} \quad (3.2)$$

$$d_2 = [\ln(S/X) + (r - \sigma^2 / 2) T] / \sigma \sqrt{T} = d_1 - \sigma \sqrt{T} \quad (3.3)$$

Table 3.3 presents option values calculated for each period.

Table 3.3: Calculation of option values

Year	Production volume ('000 ton)	Sales revenue ('000 UDS)	Cost ('000 USD)	Cash flow ('000 USD)	Discounted cash flow ('000 USD)	d1	d2	N(d1)	N(d2)	Value of the option
0	0	0	0	0	0					0
0,5	0	0	0	0	0	-0,0033	-0,2059	0,4987	0,4184	37.247,85
1	0	0	0	0	0	0,1745	-0,112	0,5693	0,4554	61.614,01
1,5	1.500	90.000	84.000	6.000	5038	0,2596	-0,0913	0,6024	0,4636	78.797,29
2	2.000	122.400	112.000	10.400	8238	0,3107	-0,0945	0,622	0,4624	91.379,06
2,5	2.000	124.848	112.000	12.848	9601	0,3484	-0,1046	0,6362	0,4583	101.179,87
3	2.500	159.181	140.000	19.181	13522	0,3656	-0,1306	0,6427	0,448	106.951,57
3,5	2.500	162.365	140.000	22.365	14874	0,3759	-0,1601	0,6465	0,4364	110.566,88
4	2.500	165.612	140.000	25.612	16069	0,3804	-0,1926	0,6482	0,4237	112.313,99
4,5	2.500	168.924	140.000	28.924	17120	0,38	-0,2277	0,648	0,4099	112.429,38
5	2.500	172.303	140.000	32.303	18038	0,3751	-0,2655	0,6462	0,3953	111.115,40

5,5	2.500	175.749	140.000	35.749	18832	0,366	-0,3059	0,6428	0,3798	108.550,28
6	2.500	179.264	140.000	39.264	19513	0,3528	-0,349	0,6379	0,3636	104.894,16
6,5	2.500	182.849	140.000	42.849	20089	0,3356	-0,3948	0,6314	0,3465	100.293,24
7	2.500	186.506	140.000	46.506	20570	0,3144	-0,4436	0,6234	0,3287	94.882,73
7,5	2.500	190.236	140.000	50.236	20962	0,2889	-0,4957	0,6137	0,31	88.789,12
8	2.500	194.041	140.000	54.041	21273	0,2588	-0,5515	0,6021	0,2906	82.132,14
8,5	2.500	197.922	140.000	57.922	21510	0,2238	-0,6115	0,5886	0,2704	75.026,57
9	2.500	201.880	140.000	61.880	21679	0,1833	-0,6762	0,5727	0,2495	67.583,99
9,5	2.500	205.918	140.000	65.918	21787	0,1365	-0,7465	0,5543	0,2277	59.914,66
10	2.500	210.036	140.000	70.036	21838	0,0824	-0,8236	0,5328	0,2051	52.129,61
10,5	2.500	214.237	140.000	74.237	21837	0,0196	-0,9088	0,5078	0,1817	44.343,24
11	2.500	218.522	140.000	78.522	21790	-0,054	-1,0042	0,4785	0,1576	36.676,40
11,5	2.500	222.892	140.000	82.892	21701	-0,1409	-1,1125	0,444	0,133	29.260,51
12	2.500	227.350	140.000	87.350	21574	-0,2455	-1,2379	0,403	0,1079	22.242,86
12,5	2.500	231.897	140.000	91.897	21412	-0,3741	-1,387	0,3542	0,0827	15.793,74
13	2.500	236.535	140.000	96.535	21219	-0,5376	-1,5706	0,2954	0,0581	10.115,51
13,5	2.500	241.266	140.000	101.266	20999	-0,7569	-1,8095	0,2246	0,0352	5.452,54
14	2.500	246.091	140.000	106.091	20755	-1,0786	-2,1505	0,1404	0,0158	2.093,46
14,5	2.500	251.013	140.000	111.013	20488	-1,6533	-2,7442	0,0491	0,003	318,19
15	2.500	256.033	140.000	116.033	20203	-32,2697	-33,3793	0	0	0

Option values obtained from Table 3.3 are also displayed in Figure 3.1.

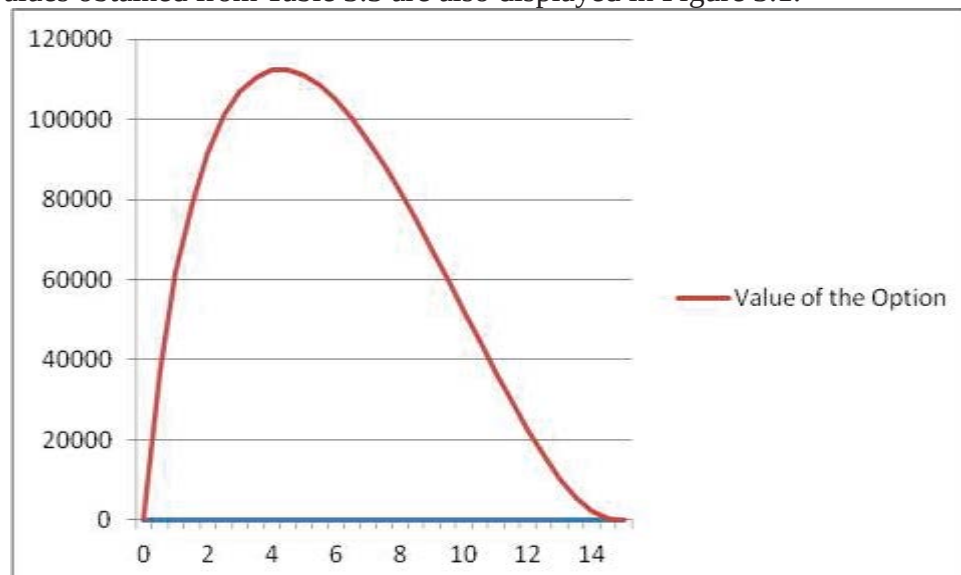


Figure 3.1: Change of option values over time

If the investment horizon is determined as the case fifteen years, the option value of the basic parameters change over time is also indicated in Table 3.3 and Figure 3.1. Each point on the curve at the end of the period gives the calculated value of its European-type options. Option

values are calculated in the first half of the fifth year reached the highest value of \$ 112,429,380 (4.5 years). The option will reach its highest value within the given parameters in the six year period as been foreseen by the company's executives and managers. At that point, the value of the project will be the sum of the net present value of -27.470.170 USD and the maximum option value of 112.429.380 USD – which is 84.959.210 USD.

4. CONCLUSION

The need of every firm, operating in a competitive environment, is the methods that will help them to take realistic decisions within the different market conditions in a prescribed future.

For this reason, static investment decisions that have to be given from the beginning reviews are inadequate for today's companies. Real options approach estimates the values of investment projects in their uncertain environment. The intrinsic values of investments with real options that have been used in these studies are made on the discounted cash flow method. Therefore, real options method can be used alone as a method of alternative and complementary method instead of being defined as traditional methods, which in turn will be more realistic in terms of decision-makers. In this study traditional valuation methods based on option theory are explained and then the real options and also financial options are included.

In the application section, although the investment is not economically significant with respect to net present value, payback period and internal rate of return, using an option to defer the investment could be carried out at the end of the first half of the fifth year. Not want to wait until this time, the project owner may not accept a project as a result of his own initiative, but needs to know the amount of options he will give up analytically. Because the project includes the flexibility of deferral, any time the appropriate conditions are present, the project can be carried on. For this reason, it is clear that American-type options are suitable to be modeled.

Looking at the case of coal prices and production costs of this project, the assumptions made for the probability analysis or simulation process used in the relevant period may be useful to set a specific data set. In addition to estimating the price of coal which may include data from the past use of simulation techniques for estimating the cash flows will be more accurate. The measure of uncertainty for real options is a current research. For this reason, more accurate and analytical techniques to measure the uncertainty about the studies can be used. In particular, for the relatively more commodity-based development projects, it is possible to calculate the analytical uncertainty. In addition, the variability of the price of coal was only as a source of uncertainty in the application part. However, the price of coal for the project and of not being the only source of uncertainty in demand uncertainty also could be mentioned. For this reason, all the uncertainty of future studies can be expanded to include the definition of uncertainty.

As a result of the valuation of coal mine, it turns out that the investment project has a negative net present value. Although economically meaningless due to deferral option, it can show the true value. In this way, the project today with a negative net present value due to deferral option value expects a fully ideal time to be invested on.

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APPENDIX

Table A.1 : Calculation of historical volatility

Months	Price (USD/ton)	$\ln(P_t/P_{t-1})$	$[\ln(P_t/P_{t-1}) - \mu]^2$
Jan.01	32,10		
Feb.01	32,10	0,0000	0,00011
Mar.01	32,60	0,0155	0,00003
Apr.01	33,50	0,0272	0,00028
May.01	33,80	0,0089	0,00000
Jun.01	33,90	0,0030	0,00006
Jul.01	34,00	0,0029	0,00006
Aug.01	33,80	-0,0059	0,00027
Sept.01	32,80	-0,0300	0,00164
Oct.01	32,40	-0,0123	0,00052
Nov.01	29,40	-0,0972	0,01158
Dec.01	27,35	-0,0723	0,00684
Jan.02	29,10	0,0620	0,00266
Feb.02	29,85	0,0254	0,00023
Mar.02	29,55	-0,0101	0,00042
Apr.02	28,84	-0,0243	0,00121
May.02	28,63	-0,0073	0,00031
Jun.02	26,65	-0,0717	0,00674
Jul.02	24,90	-0,0679	0,00614
Aug.02	24,00	-0,0368	0,00223
Sept.02	24,45	0,0186	0,00007
Oct.02	26,25	0,0710	0,00367
Nov.02	26,25	0,0000	0,00011
Dec.02	26,25	0,0000	0,00011
Jan.03	26,68	0,0162	0,00003
Feb.03	26,95	0,0101	0,00000
Mar.03	26,14	-0,0305	0,00168
Apr.03	25,13	-0,0394	0,00248
May.03	24,96	-0,0068	0,00030
Jun.03	25,82	0,0339	0,00055
Jul.03	26,09	0,0104	0,00000
Aug.03	27,13	0,0391	0,00082

Sept.03	28,61	0,0531	0,00182
Oct.03	29,46	0,0293	0,00036
Nov.03	32,05	0,0843	0,00545
Dec.03	36,43	0,1281	0,01384
Jan.04	40,45	0,1047	0,00888
Feb.04	44,73	0,1006	0,00813
Mar.04	52,43	0,1588	0,02202
Apr.04	57,05	0,0844	0,00548
May.04	60,47	0,0582	0,00228
Jun.04	63,80	0,0536	0,00186
Jul.04	65,76	0,0303	0,00039
Aug.04	63,48	-0,0353	0,00209
Sept.04	59,33	-0,0676	0,00609
Oct.04	60,67	0,0223	0,00014
Nov.04	56,60	-0,0694	0,00638
Dec.04	55,98	-0,0110	0,00046
Jan.05	56,83	0,0151	0,00002
Feb.05	53,46	-0,0611	0,00512
Mar.05	54,56	0,0204	0,00010
Apr.05	54,91	0,0064	0,00002
May.05	54,98	0,0013	0,00008
Jun.05	54,64	-0,0062	0,00028
Jul.05	54,54	-0,0018	0,00015
Aug.05	52,63	-0,0356	0,00212
Sept.05	48,48	-0,0821	0,00857
Oct.05	45,49	-0,0637	0,00549
Nov.05	40,78	-0,1093	0,01434
Dec.05	40,96	0,0044	0,00004
Jan.06	46,27	0,1219	0,01242
Feb.06	51,11	0,0995	0,00793
Mar.06	53,30	0,0420	0,00099
Apr.06	56,65	0,0610	0,00255
May.06	56,36	-0,0051	0,00024
Jun.06	56,12	-0,0043	0,00022
Jul.06	56,52	0,0071	0,00001
Aug.06	54,58	-0,0349	0,00206
Sept.06	50,46	-0,0785	0,00791

Oct.06	47,20	-0,0668	0,00596
Nov.06	49,29	0,0433	0,00108
Dec.06	53,30	0,0782	0,00459
Jan.07	54,95	0,0305	0,00040
Feb.07	56,68	0,0310	0,00042
Mar.07	59,34	0,0459	0,00126
Apr.07	60,13	0,0132	0,00001
May.07	60,00	-0,0022	0,00016
Jun.07	66,00	0,0953	0,00720
Jul.07	72,12	0,0887	0,00612
Aug.07	74,30	0,0298	0,00037
Sept.07	73,33	-0,0131	0,00056
Oct.07	80,15	0,0889	0,00616
Nov.07	90,64	0,1230	0,01267
Dec.07	97,50	0,0730	0,00391
Jan.08	98,30	0,0082	0,00001
Feb.08	141,43	0,3638	0,12486
Mar.08	126,70	-0,1100	0,01450
Apr.08	131,79	0,0394	0,00084
May.08	142,71	0,0796	0,00478
Jun.08	171,16	0,1818	0,02936
Jul.08	192,86	0,1194	0,01187
Aug.08	169,71	-0,1279	0,01913
Sept.08	160,71	-0,0545	0,00421
Oct.08	115,71	-0,3285	0,11488
Nov.08	98,84	-0,1576	0,02823
Dec.08	84,27	-0,1595	0,02887
Jan.09	85,71	0,0169	0,00004
Feb.09	80,76	-0,0595	0,00489
Mar.09	65,36	-0,2116	0,04929
Apr.09	68,10	0,0411	0,00094
May.09	69,11	0,0147	0,00002
Jun.09	76,48	0,1013	0,00826
Jul.09	79,07	0,0333	0,00052
Aug.09	77,68	-0,0177	0,00079
Sept.09	72,47	-0,0694	0,00638
Oct.09	76,15	0,0495	0,00153

Nov.09	84,43	0,1032	0,00861
Dec.09	89,04	0,0532	0,00183
Jan.10	103,93	0,1546	0,02079
Feb.10	100,92	-0,0294	0,00159
Mar.10	101,12	0,0020	0,00007
	Sum Σ	1,1475	0,74544
	Mean μ	0,0104	
	Variance σ^2	0,68%	
	Std. Dev. σ	8,27%	
	Annual Std. Dev. σ	28,65%	

MODELLING CAPITAL STRUCTURE ADJUSTMENT SPEEDS ACROSS MACROECONOMIC STATES: EVIDENCE FROM THE JSE

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ABSTRACT

We investigate capital structure adjustment speeds for financially constrained, unconstrained and full sample JSE listed non-financial firms across good and bad macroeconomic states. Using the Generalised Method of Moments (GMM) estimation technique, and controlling for the effects of mean reversion and extreme leverage observations, we find some evidence of moderate target adjustment behaviour for total and long term leverage in both the good and bad macroeconomic states. However adjustment speeds are higher for the short term debt ratio. Furthermore, the manner in which adjustment speeds change is highly sensitive to the definition of macroeconomic states used. We also find evidence that there is a statistically significant difference in the speed of adjustment for firms across the different economic states. However, this significance dissipates when the short term debt ratio is used. It is also documented that the difference in the speed of adjustment for the constrained and unconstrained firms is significantly different across the two states.

Keywords: Adjustment Speed, Capital Structure, Macroeconomic conditions, Target leverage,

1. INTRODUCTION

The issue of whether or not firms target an optimal level of debt has been the subject of much debate, with the primary capital structure theories (trade-off, pecking order and market timing theories) holding different views as to whether firms target an optimal capital structure. Yet substantial evidence has been found in favour of capital structure targeting: In a survey conducted on 392 Chief Financial Officers, Graham and Harvey (2001) find that 81% of respondents confirmed having an optimal or target debt-to-equity ratio. In a similar survey conducted on South African listed firms, Correia and Cramer (2008) find that 79% of South African firm managers apply some form of debt-equity ratio targeting. Since not operating

at the target level of debt would be sub-optimal, firms have the incentive to make adjustments to ensure that deviations from the target do not persist. This prompts the investigation of how long firms take to reach their target capital structures, and what factors affect the speed of adjustment towards this target level.

While most research has examined the firm-level factors affecting the speed of adjustment, few (Drobetz, Pensa & Wanzenried, 2007; Cook & Tang, 2010; Halling, Yu & Zechner, 2011) have studied the effect of macroeconomic conditions on adjustment speed. Yet there is evidence to suggest that capital structure adjustment speed is affected by macroeconomic conditions: Stephan and Talavera (2004) find evidence that the optimal level of debt for a firm is negatively related to the level of macroeconomic uncertainty as proxied by the conditional variance in industrial output, CPI, S&P 500 Index and leading economic indicators. This negative association implies that firms issue less debt in periods of macroeconomic uncertainty. In spite of this, it appears that no published studies addressing this issue have been conducted purely in a South African context. Thus the main aim of this paper is to investigate whether or not changes in macroeconomic conditions affect the speed at which South African firms adjust toward their target level of capital structure⁴³. Furthermore, we examine whether these adjustment speeds vary significantly across different macroeconomic states. We also aim to improve on the methodology commonly found in previous literature by correcting for the potential effects of mean-reversion due to the fractional nature of leverage ratios, as well as accounting for extreme leverage observations. Furthermore, we build on previous research by assessing whether these findings are robust to various definitions of leverage, and whether financial constraints affect the adjustment process of firms listed on the Johannesburg Securities Exchange (JSE).

We find evidence that macroeconomic conditions have a significant impact on the capital structure adjustment speed. Specifically, when macroeconomic conditions are modelled by the equity index, CPI, leading and lagging indicators, firms adjust faster in favourable macroeconomic states. This is evident for the total debt ratio. However, the opposite occurs when economic states are proxied by Term spread, GDP and the coincident indicator. In addition, the manner in which adjustment speeds change is highly sensitive to the definition of macroeconomic states used. Also, higher adjustment speeds are generally found for short-term debt targets in comparison to total or long-term targets. We also find evidence that there is a statistically significant difference in the speed of adjustment for firms across the good and bad economic states. However, this significance dissipates when the short term debt ratio is used. It is also documented that the difference in the speed of adjustment for the constrained and unconstrained firms is significantly different across the two states. The direction of adjustment is, nonetheless, sensitive to the economic indicator used.

2. RESEARCH DESIGN AND DATA REQUIREMENTS

2.1 Sample Selection

Firm characteristic data needed for the regression analysis were obtained from the McGregor Bureau of Financial Analysis (BFA) database, while macroeconomic data were obtained from the South African Reserve Bank (SARB) website as well as the McGregor BFA database. The following requirements had to be met for a firm to be included in the dataset: Firms had to be listed on the main board of the JSE, and they must have had at least two consecutive years of accounting data. In accordance with previous research, financial firms and

regulated utilities are excluded from the dataset as their capital structure choices are subject to regulatory requirements (Lemmon, Roberts & Zender, 2008). Firm-year observations were also excluded in the event that the value of total assets was zero (this would result in an undefined value as total assets constitutes the denominator of most variables). Further exclusions were made if there was not a complete set of firm-characteristic data for the firm-year observation.

In line with previous authors such as Flannery and Rangan (2006), all firm-characteristic control variables to be used are winsorized at the 1st and 99th percentiles in order to mitigate the effect of extreme observations. The final sample includes firms listed on the main board of the JSE from 2000 to 2010.

2.2 Model Specification

For the purposes of this paper, an adaptation of the two-stage dynamic partial adjustment model is used as it is more widely used in previous literature and allows for better comparison of adjustment speed estimates. In addition, Cook and Tang (2010) report similar overall findings when using both the two-stage and integrated models.

In the first stage, the target ratio is estimated as a function of lagged firm-characteristic variables and macroeconomic control variables, using a fixed effects regression:

$$BDR_{i,t}^* = \gamma Macro_{t-1} + \beta X_{i,t-1} + e_{i,t} \quad (1)$$

where

3. $BDR_{i,t}^*$ is the target debt ratio of firm i at time t .
4. $Macro_{t-1}$ is a set of prior-period (lagged by one year) macroeconomic control variables affecting target leverage
5. $X_{i,t-1}$ is a set of lagged firm-characteristic control variables.
6. β is a vector of coefficients on the firm-characteristic variables.
7. γ is a vector of coefficients on the macroeconomic variables. (According to the trade-off hypothesis, $\beta \neq 0$, and there should be substantial variation in $BDR_{i,t+1}^*$).
8. $e_{i,t}$ is the error term.

In the second stage, the debt ratio is modelled as a function of the target debt ratio and a set of lagged firm-characteristic control variables.

$$BDR_{i,t} - BDR_{i,t-1} = \lambda_1 BDR_{i,t}^* I_{i,t}^f + \lambda_2 BDR_{i,t}^* I_{i,t}^u + \beta X_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

where

- $BDR_{i,t}$ represents the debt ratio (total, short-term or long-term) of firm i at time t .
- $BDR_{i,t}^*$ is the target debt ratio of firm i at time t .
- $I_{i,t}^f$ and $I_{i,t}^u$ are macroeconomic indicator variables interacted with the target debt ratio – the coefficients of which (as per a standard partial adjustment model) should yield speed-of-adjustment estimates. $I_{i,t}^f$ is equal to 1 if the relevant firm year observation occurred during a favourable state and 0 otherwise. Similarly, $I_{i,t}^u$ is equal to 1 if the relevant firm year observation occurred during an unfavourable state, and 0 otherwise.
- λ_1 is the speed of adjustment during a favourable state and λ_2 is the speed of adjustment during an unfavourable state.
- $X_{i,t-1}$ is a set of lagged firm-characteristic control variables and $\varepsilon_{i,t}$ is the error term.

The choice of this specification can be justified as follows: Firstly, many authors (Rajan & Zingales, 1995; Fama & French, 2002; Flannery & Rangan, 2006) find evidence that firm-level variables significantly affect adjustment speeds. Thus, lagged firm-characteristic variables are included to ensure that the adjustment speed coefficient reflects adjustment in response to macroeconomic conditions, and not changes in firm characteristics. Secondly, the second stage was estimated using the Arellano-Bover/Blundell-Bond GMM regression method available in the STATA 11 package as standard panel estimators such as OLS and fixed effects regressions have been found to be biased when a lagged dependent variable is incorporated in the model, leading to problems such as endogeneity. GMM regressions are designed to alleviate the severity of endogeneity. In addition, GMM estimates are also more efficient as they are robust to heteroskedasticity. Moreover, the Arellano and Bover (1995) method, also discussed by Blundell and Bond (1998) has been found to be an improvement over first-differencing techniques when dealing with a persistent data series such as leverage. Lastly, even GMM estimators may be biased – due to the fact that observed debt ratios are bounded between 0 and 1 (they are fractional in nature). This means extremely high debt ratios can only move down, and extremely low ratios can only move up (Shyam-Sunder & Myers, 1999). This phenomenon is termed “mechanical mean reversion” and may result in a positive adjustment speed estimate even if leverage changes occur at random, as the estimator may mistake mechanical mean reversion for adjusting towards target leverage (Shyam-Sunder & Myers, 1999; Iliev & Welch (2010), Elsas & Florysiak; 2011). Hovakimian and Li (2011) propose that the issue of mean reversion can be solved by including the target leverage term and the lagged debt ratio as separate variables in the regression. They demonstrate that the estimate of the speed of adjustment arising from the coefficient on the lagged debt ratio (used in standard models) captures mean reversion effects, but the coefficient on the target leverage term does not. Thus we focus on the interpretation of the coefficient on the target debt ratio as the coefficient on the lagged debt ratio does not yield accurately interpretable results.

The reliability and consistency of GMM estimates is critically dependent on the validity of the instruments in the model and the absence of serial correlation in the error terms. Various tests were conducted in this respect and they were all satisfied.

3 RESULTS AND DISCUSSION

Table 1: Adjustment Speed Estimates for the Full Sample

Macroeconomic Indicator	SOA in good state	SOA in bad state	Difference
Panel A: Total leverage			
Equity Index	0.4881*** (0.1230)	0.4289*** (0.1324)	0.0592 p=(0.0007)
		Obs. 1239	Wald 1026.15***
Term spread	0.2118 (0.1342)	0.2560 (0.1697)	-0.0442 p=(0.0328)
		Obs. 1239	Wald 997.12***
GDP	0.3662*** (0.1333)	0.4240*** (0.1264)	-0.0618 p=(0.0035)
		Obs. 1239	Wald 933.23***
CPI	0.2544* (0.1516)	0.2262 (0.1574)	0.0282 p=(0.1078)
		Obs. 1031	Wald 758.37***
Leading Indicator	0.4881*** (0.1374)	0.4397*** (0.1322)	0.0489 p=(0.0188)
		Obs. 1239	Wald 957.56***
Coincident Indicator	0.3281** (0.1336)	0.3927*** (0.1267)	-0.0646 p=(0.0010)
		Obs. 1239	Wald 936.36***
Lagging Indicator	0.4030** (0.1359)	0.3820** (0.1716)	0.0210 p=(0.3627)
		Obs. 1031	Wald 679.5***
Panel B: Long-term leverage			
Equity Index	0.2287*** (0.0771)	0.2429*** (0.0802)	-0.0142 p=(0.4000)
		Obs. 1239	Wald 4240.06***
Term spread	0.2614*** (0.0842)	0.2812*** (0.0793)	-0.0198 p=(0.2513)
		Obs. 1239	Wald 4418.05***
GDP	0.2298*** (0.0815)	0.3583*** (0.0859)	-0.1285 p=(<0.0001)
		Obs. 1239	Wald 4066.52***
CPI	0.1919* (0.1014)	0.1462 (0.1113)	0.0457 p=(0.0246)
		Obs. 1031	Wald 3847.22***
Leading Indicator	0.2486*** (0.0780)	0.2592*** (0.0798)	-0.0106 p=(0.4908)
		Obs. 1239	Wald 4204.06***
Coincident Indicator	0.2237*** (0.0815)	0.3554*** (0.0859)	-0.1317 p=(<0.0001)
		Obs. 1239	Wald 4038.41***
Lagging Indicator	0.2009** (0.0894)	0.2577*** (0.0846)	-0.0568 p=(0.0220)
		Obs. 1031	Wald 3960.45***

Table 5 continued: Adjustment Speed Estimates for the Full Sample

Macroeconomic Indicator	SOA in good state	SOA in bad state	Difference
Panel C: Short-term leverage			
Equity Index	0.9218*** (0.1906)	0.9309*** (0.2120)	-0.0091 p=(0.8058)
		Obs. 1239 518.74***	Wald
Term spread	1.3375*** (0.2504)	1.2485*** (0.2227)	0.0890 p=(0.0156)
		Obs. 1239	Wald 503.31***
GDP	0.8536*** (0.1681)	0.8927*** (0.1636)	-0.0391 p=(0.2328)
		Obs. 1239 539.59***	Wald
CPI	0.7684*** (0.2013)	0.7330*** (0.1915)	0.0354 p=(0.2615)
		Obs. 1031 493.49***	Wald
Leading Indicator	0.9351*** (0.1937)	0.9772*** (0.2116)	-0.0421 p=(0.1698)
		Obs. 1239	Wald 486.68***
Coincident Indicator	0.8567*** (0.1678)	0.9010*** (0.1634)	-0.0443 p=(0.1771)
		Obs. 1239 544.41 ***	Wald
Lagging Indicator	1.1095*** (0.3124)	1.1030*** (0.2766)	0.0065 p=(0.0905)
		Obs. 1031 359.98***	Wald

The table shows speed of adjustment (SOA) estimates (coefficients on the interaction terms of macroeconomic variable dummies with the target leverage term) for good and bad states as defined by various macroeconomic indicators/variables for the total sample from 2000-2010. Regression results are reported separately for each regression. Panels A, B and C report regression results from using the total, short-term and long-term leverage ratios respectively as a dependent variable. GMM standard errors are reported in brackets below these figures. In addition, the number of observations (Obs.) and Wald test statistics are reported for each regression. Significance of the statistics and estimates at the 1%, 5% and 10% levels are

denoted by ***, ** and * respectively. In addition, the differences in speeds-of-adjustment between states are reported, along with p-values to test for the significance of the differences. A significant p-value results in the rejection of the null hypothesis of no difference in adjustment speed between states.

3.1 Adjustment Speeds for the Full Sample

Table 1 shows the initial speed-of-adjustment estimates for the full sample in favourable and unfavourable states as defined by the various macroeconomic indicators. Panels A, B and C report results using total leverage, long-term leverage and short-term leverage in turn as the dependent variables. For brevity, only the adjustment speed coefficient estimates, associated p-values and GMM standard errors are reported. Also included are the magnitudes of the differences in adjustment speeds between states and p-values from significance tests of the difference in means of the adjustment speed coefficients across states. Wald test statistics to test for the joint significance of the explanatory variables, as well as the number of observations from each regression are reported beneath the adjustment speed estimates. The VIF tests for multicollinearity reveal that there were no problems in this regard⁴⁴. The Sargan tests reveal that the over-identifying restrictions for the regressions are valid in all cases, and second-order autocorrelation was also not present.

When using the equity index to define macroeconomic conditions, it is evident that firms close about 48.81% of the gap between actual total leverage and target total leverage in one year in good states. In bad states, they only close about 42.89% of the gap. These are within the range of speeds found by Cook and Tang (2010). Similar speeds are observed for conditions defined according to the leading indicator, while speeds of almost half the magnitude are observed for the term spread and CPI. In addition - apart from observations regarding the term spread and CPI - all SOA estimates are significant at the 5% level.

The results for total leverage indicate that adjustment speeds are higher in good states relative to bad states when conditions are defined by the equity index, CPI, leading indicator and lagging indicator. These differences vary from 2.10% (lagging indicator) to 5.92% (equity index). This provides some support for the theoretical model proposed by Hackbarth et al. (2006) and the findings of Drobetz et al. (2007), Cook and Tang (2010) - that firms should adjust faster in good macroeconomic states. However, the differences are only significant at the 5% level⁴⁵ for the equity index and leading indicator observations. The opposite occurs when states are defined by term spread, GDP and the coincident indicator: higher SOA estimates are observed for unfavourable states. In addition, these differences are relatively larger; ranging from 4.41% (term spread) to 6.46% (coincident indicator) and are significant for all three indicator observations at a 5% level of significance (though the actual SOA estimates for term spread are insignificant). This supports the findings of Rubio and Sogorb (2011) and Hess and Immenkötter's (2011) model - implying that firms adjust toward their targets faster in bad states as the cost of not being at the optimal level of debt is higher in these states.

When using long-term leverage as the dependent variable, the overall adjustment speed estimates observed are dramatically reduced (roughly half in some cases) in relation to total leverage. This suggests that firms take longer to adjust toward their long-term leverage targets. These estimates range from 19.19% to 26.14% per year in favourable states (for

⁴⁴ The results for VIF test are not included in this paper

⁴⁵ A p-value of less than 0.1, 0.05 and 0.01 indicate significance at the 10%, 5% and 1% levels respectively.

conditions defined by CPI and the term spread respectively) and 14.62% to 35.83% per year in unfavourable states (for conditions defined by CPI and GDP respectively). Moreover, the adjustment speeds remain significant at the 5% level for most observations. The overall results in panel B indicate that firms adjust toward their long-term leverage targets faster in unfavourable states relative to favourable states (the reverse only holds true for conditions defined according to CPI) – once again corroborating the findings of Rubio and Sogorb (2011) and Hess and Immenkötter (2011). In addition, these differences vary greatly, from 1.42% when using the equity index as an indicator, to as much as 12.85% and 13.17% when using GDP and the coincident indicators, respectively. Although these differences are insignificant for the equity index, term spread and leading indicator observations, they are highly significant for the GDP, coincident and lagging indicator observations.

The results vary even more so when using short-term leverage as a dependent variable. The adjustment towards short-term leverage targets is dramatically faster relative to the previous leverage definitions. For example, the lowest speeds documented are 76.84% in a year for upturns and 73.3% in one year for downturns in the case of using CPI as an indicator. Interestingly, when using the term spread and lagging indicator to define states⁴⁶, results indicate that firms take less than a year to adjust toward their short-term leverage targets. The speeds of adjustment observed amount to as high as 133.75% and 110.95% in upturns and around 124.85% and 110.3% in downturns when states are defined by the term spread and lagging indicator respectively. Although this may actually be an indication that the firms are over-adjusting relative to their targets, and therefore do not regard targeting as a priority, speeds above 100% only occur in two cases. It is also evident that all the estimates are highly significant at all levels. Once again, in most cases (although insignificant) adjustment speeds are higher in macroeconomic downturns for short-term leverage than in upturns. Moreover, the only significant difference observed in adjustment speeds across upturns and downturns is considerably high (8.90%). This occurs in the case where conditions are defined by the term spread. Again, this corroborates Hess and Immenkötter's (2011) model, and Rubio and Sogorb's findings.

3.2 Adjustment Speeds for Financially Constrained and Unconstrained Firms

In an unreported analysis, the adjustment speed estimates obtained for constrained and unconstrained firms are highly significant in most cases. Adjustment speeds are again relatively higher for both samples when using short term leverage as a dependant variable. However, a peculiarity arises in the case of constrained firms: When short-term leverage is considered, many of the adjustment speeds are above 100% (sometimes as high as 166.79%) - indicating that these firms over-adjust relative to their short-term leverage targets. Moreover, when total leverage and long-term leverage are considered, majority of the adjustment speeds for the constrained firms are negative in both favourable and unfavourable states. This is in line with the findings of Iliev and Welch (2010) and Hovakimian and Li (2010), who also find negative adjustment speed estimates. These estimates, however, are far greater in magnitude. While extremely low adjustment speed estimates would perhaps suggest that constrained firms are not adjusting towards a target at all, negative estimates leads one to believe that these firms seem to be actively adjusting away from their total and long-term leverage targets.

⁴⁶ As the SOA estimates measure the percentage of the distance firms close between their actual and target ratios in one year, and a speed of 100% indicates perfect adjustment, speeds of greater than 100% suggests firms adjust beyond their target ratios, implying that they would reach their targets (reach a 100% SOA) in less than a year.

4 CONCLUSIONS

This paper has examined the effects of macroeconomic conditions and firm financing constraints on the capital structure adjustment speeds of South African listed firms. In sum, there is some indication that macroeconomic conditions affect speed at which South African firms adjust toward their target capital structures. Most adjustment speed estimates found were highly significant and most macroeconomic indicators suggest that firms adjust at a significantly higher or lower speed in certain states than others. However, the manner in which adjustment speeds change is highly sensitive to the definition of macroeconomic states used. Although not overwhelmingly, there is evidence that firms adjust faster in unfavourable macroeconomic states, suggesting that the costs of deviating from optimal leverage are higher in such conditions and that firms thus adjust faster in order to avoid such costs. Higher adjustment speeds are generally found for short-term debt, suggesting that firms adjust considerably faster toward short-term leverage targets in comparison to total or long-term leverage targets.

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An Investigation of the Relationship between Fund Efficiency and Ratings

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ABSTRACT

Morning Star is a rating agency that rates mutual funds based on past performance. The best performing funds are rated 5* while the lowest performing ones are rated 1*. Investors rely heavily on these ratings for making their investment decision. In this paper we use a Data Envelopment Based measure of efficiency to examine whether the funds rated 5* differ in efficiency from funds that are rated 2* by Morning Star ratings. The results of the study indicate that by and large the Morning Star 5* funds are more efficient than the 2* funds confirming that these ratings are a useful tool for investors.

1 Introduction

Mutual funds have found their way into the lives of millions of people across the world either as part of their investments or as part of their pension pot. The choice of funds available to the investors is large and their decisions to invest in a particular fund are largely influenced by the ranking/rating of the fund. Companies that constantly evaluate mutual fund performance give these rankings/ratings. For the average investor planning to take advantage of a mutual fund as a "one-stop investment", it is imperative that a performance measure not only gives an accurate measure of the fund's historical performance, but also an indication of its future performance. In America, Morningstar Inc. is the industry leader whose star-ratings greatly influence the investor behaviour. However, earlier studies have revealed that the majority of mutual funds in the US did not perform any better than the indices against which they have been measured.

A ranking system like Morningstar derives its ratings by classifying funds on their risk adjusted return performance. Other measures of fund performance include Sharpe index (Sharpe, 1966), Treynor index (Treynor, 1965) and Jensen's alpha (Jensen, 1968). These indices and rating system lose out since they do not have a specific benchmark and ignore market timing and costs. As a result the performance measurement can be subjective. Grossman (1976) and Elton et al. (1993) support the inclusion of transaction costs in appraising the performance of funds. Sharpe (1998) argues that neither Morningstar's measure nor the excess-return Sharpe ratio is an efficient tool for choosing mutual funds within peer groups for a multi-fund portfolio.

The investor has access to information regarding performance of the funds and the various time-horizons over which the performance was achieved. However, the investor is typically left to his own intuition to decide which past performance is the most meaningful in terms of predicting the future performance. The ratings awarded to funds can be subjective and can lead to mis-identification of high performing funds. For example, in case of Morningstar's

ranking system long-term performance is given more weighting than short-term performance, as a result a poor performing fund might still be highly rated due to strong long-term performance.

Blake and Morey (1999) point out that there is very little statistical evidence that Morningstar's highest rated funds outperform the next-to-highest or the median-rated funds. They also point out that Morningstar ratings do no better than the "naïve" predictor (historical average monthly return) for predicting fund performance.

To overcome the problem of specification of a benchmark and also to incorporate transactions cost like Murthi et al. (1997) this paper uses a non-parametric approach (DEA) for mutual fund performance appraisal. Using DEA eliminates the need for theoretical benchmarks by generating its own efficiency frontier using a number of inputs and outputs simultaneously.

Since equity funds are the most popular funds and the U.S. is the largest market for mutual funds, we examine the performance of U.S. domestic equity funds for the study. Using returns per unit of risk (standard deviation) and expense, we rank two distinctly rated groups of funds, viz., the Morning Star 5-star and 3-star, and assess the efficiency of both. As Blake and Morey (1999) point out that Morning Star 1-star and 2-star rated funds are poor performers and as there's little statistical difference between the returns of 5-star, 4-star and 3-star rated funds, we use 5-star and 3-star rated funds for this study. We exclude 4-star funds, since they may not be so different from highest rated fund and could well be "leftovers" under Morningstar rating system. This study covers three year historical return from the period 25-sep-01 to 24-sep-04. This study uses a DEA approach to rank the funds for each of the three years. By examining the difference in performance of the 5 star and 3 star funds, the study tests whether these ratings provide any useful information. It also helps investors to choose between the different rated funds. Thus this fills a void in the literature and also provides investors with a better understanding of the performance of the funds.

The rest of the paper is organized as follows. Section 2 explores the prior studies in the field of non-parametric approaches to mutual fund performance appraisal. It introduces the concepts of DEA and the DEA indexes proposed for mutual fund appraisal. Section 3 describes the data and the methodology. Section 4 reports the results and contains the analysis of our findings. Finally, we conclude in Section 5 with some conclusions.

2. Literature Review

Treynor (1965) suggested the first substantially different and a more meaningful predictor of mutual fund performance by incorporating the volatility of a fund's return. It is a numerical index that measures reward-to-variability ratio. The Treynor measure produces excess return per unit of systematic risk. A higher value indicates superior performance. It is measured as:

$$(r_p - r_f)/\beta_p$$

Sharpe (1966) proposed the Sharpe index that measured reward-to-volatility ratio and it soon became a major index to assess portfolio performance. It is defined as the ratio of excess return of the portfolio to the standard deviation. A fund that earns higher return per unit of standard deviation is a superior performer. The Sharpe measure is calculated as:

$$(r_p - r_f)/\sigma_p$$

In finance literature, the return/risk relationship is well established in the CAPM and CML (capital market line). Both these measures avoid the problems of specification of a benchmark and do not take into consideration the transaction costs associated with the buying and selling of assets.

Jensen proposed Jensen's alpha (Jensen, 1968), which is defined as the difference between the actual portfolio return and the estimated benchmark return. This is by far the most widely used index of performance and it addresses the issues of benchmarking and market timing. The benchmark could be based on either the CAPM (capital asset pricing model) or the APT (arbitrage pricing theory) model. Jensen's alpha is calculated as:

$$\alpha = r_p - [r_f + \beta_p (r_m - r_f)]$$

Many studies as summarised in Elton et al., (1993) find that Jensen's alpha is sensitive to the choice of the benchmark model that is employed for the comparison and argue that the estimation of Jensen's alpha may be biased due to market timing, which is the ability of the fund managers to systematically change the target risk of the fund. Barras et al (2010), controlling for luck, find that most funds exhibit zero alpha.

Researchers have established a connection between transaction costs and portfolio performance (Grossman, 1976; Elton et al., 1993). They argue that as the collection and usage of information is costly, informed investor should earn higher returns. A performance measure of funds, therefore, should also incorporate transaction costs. Varian (1990) advocates the use of nonparametric approach to measure optimal behaviour of investors. He argues that parametric testing for significance puts a great emphasis on statistical significance and ignores economic significance.

The nonparametric approach used in this paper is the Data Envelopment Analysis (DEA), proposed by Charnes, Cooper and Rhodes (1978). This model (hereafter, CCR model) focuses on the relative efficiency of a set of decision-making units (DMUs). All these units require some input and in return generate some output. The DEA is essentially the ratio of weighted sum of outputs to a weighted sum of inputs. It generates a linear frontier that represents the best achievable output for given level of input. This frontier becomes the benchmark for other DMUs. The DMUs on the frontier become peers for the inefficient DMUs.

Murthi et al. (1997) used DEA to take into account risk and transaction costs to evaluate mutual fund performance by incorporating expense ratio, load, turnover and standard deviation as inputs and return as output. Blake and Morey (1999) find that returns generated by highest rated funds are not statistically different from median-rated funds.

Basso and Funari (2001) propose a multiple input single output model but takes into account only subscription cost and redemption fees as input. For excluding other costs, the authors argue that other costs like operational expenses, management fees, markets and administrative expenses and trading turnover ratio do not directly burden the investor and that these expenses are deducted from the fund quotation. However, using data on French mutual funds, Dermine and Roller (1992) show that economies (diseconomies) of scale for small (large) funds may exist.

Murthi and Choi (2001) address this issue by incorporating variable returns to scale in a DEA based efficiency measure. Since CCR model assumes constant return to scale, they employ the BCC model of DEA was proposed by Banker, Charnes and Cooper (1984) that assumes variable return to scale (VRS). Morey and Morey (1999) apply the philosophy of DEA to mutual fund performance appraisal, simultaneously considering fund risks and returns over different time periods. They propose that inclusion of timing in performance appraisal of funds may provide useful insights in ranking/rating of funds.

Russel (2006) examining the efficacy of the Morning Star rating systems find that these ratings reflect past performance but do not foretell the future. Haslem et al (2008) investigating US equity funds from Morning Star indicate that funds with low expense ratios and no or low front-end fees tend to have superior performance.

3 The Data Envelopment Analysis

Charnes, Cooper, Rhodes (CCR) model:

The DEA (Charnes et al., 1978) is an optimization based technique that allows measuring the relative performance of decision making units (DMUs), characterized by multiple objectives and/or multiple input structures. A DMU is regarded as an entity responsible for converting inputs into outputs. The measure of efficiency is essentially defined as a ratio of weighted outputs to weighted inputs. Formally to compute the DEA, we have to solve the following fractional problem:

$$\begin{aligned}
 &\text{maximize: } h_o = \frac{\sum_{r=1}^s u_r y_{ro}}{\sum_{i=1}^m v_i x_{io}} \\
 &\text{subject to: } \frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1; \quad j = 1, 2, \dots, n \\
 &\quad \frac{u_r}{\sum_{i=1}^m v_i x_{io}} > \varepsilon; \quad r = 1, \dots, s \\
 &\quad \frac{v_i}{\sum_{i=1}^m v_i x_{io}} > \varepsilon; \quad i = 1, \dots, m \\
 &\quad \varepsilon > 0
 \end{aligned}$$

where

$j = 1, 2, \dots, n$ decision making units

$r = 1, 2, \dots, s$ outputs

$i = 1, 2, \dots, m$ inputs

y_{rj} amount of output r for unit j

x_{ij} amount of input i for unit j

u_r weight assigned to output r

v_i weight assigned to input i

$y_{rj}, x_{ij} > 0$

u_r and $v_i \geq \varepsilon$ where ε is a non-Archimedean constant

The numerator represents a set of desired outputs and the denominator represents a collection of resources used to obtain these outputs. The value h_o^* obtained from this ratio satisfies $0 \leq h_o^* \leq 1$ and can be interpreted as an efficiency rating in which $h_o^* = 1$ represents full efficiency and $h_o^* < 1$ means inefficiency is present. The star (*) indicates an optimal value obtained from solving the model. The optimal values u_r^*, v_i^* may be interpreted as weights when solutions are available from the equation. They are the weights which are most favourable for the DMUs. v_i^* is the optimal weight of the input and u_r^* is the optimal weight of output.

Farrell (1957) proposed that the efficiency of a firm consists of two components: *technical*

efficiency, the ability of a firm to obtain maximal output from a given set of inputs and *allocative efficiency*, which is the ability of a firm to use the inputs in optimal proportions, given their respective prices. The product of these two measures is total *economic efficiency*.

4 Data and Methodology

Following the analysis done by Murthi et al (1997) and Basso and Funari (2001), this paper also looks at measuring mutual fund performance in terms of standard deviation of returns and the expenses incurred by the fund. We use return as an output and standard deviation and expense ratio as two inputs for our DEA. Thus, we have a single output – multiple input model of DEA. Standard deviation is a proxy for risk and investors will expect higher returns at higher risk levels. Expense ratio is a proxy for transaction costs and again investors expect higher returns for higher costs incurred. Since our DEA is a maximization process, our objective is to maximize returns for a given level of risk and cost.

Data Source

The Morningstar database consists of more than 15,000 open-ended mutual funds. Our sample is drawn from the set of all domestic equity funds represented in the Morningstar data base from August 31, 2001 to August 31, 2004. We have excluded all specialty funds to avoid bringing in sector specific discrepancies. We eliminate index funds in order to more clearly see the response of investors and managers to a change in the overall star rating. Morningstar does not rate funds that have less than three years of data and so very young funds are also eliminated. We include only no-load funds, the rationale being that as we are considering only expense ratio as a proxy for cost of funds, it would be inappropriate to include funds that also have other costs like front-end or deferred load. We exclude funds that have negative 3-year return figures since DEA cannot accept negative values. We further exclude a very small number of funds with reported expense ratios in excess of 10% because these atypical funds may act as outliers and distort the overall results of our tests. Then from the Morningstar Style Box we choose the Growth funds in all the three sizes – large cap, mid-cap and small cap. This allows us to examine the performance of the Growth funds for the three sizes as well across the two different star ratings.

There are a total of 15,748 funds, of which 5,837 are no-load funds. For the purpose of this study we have selected 25 each of 5-star rated and 3-star rated from each of the three Growth categories. In case where 25 funds are not available, we have taken the maximum possible number of funds and made an attempt to keep the total number of funds around 50 from each category. After satisfying all the previous criteria, the funds were selected randomly, the random numbers being generated by random function of Microsoft Excel. These criteria resulted in a sample of 420 funds from a universe of 2,765 funds as shown in Table 1:

Table 1 Segregation of Sample Data

Category	No. of Funds	5-star Funds	Funds Selected	3-star Funds	Funds Selected	Total Funds
Large Growth	1,289	38	25	131	25	50
Mid-cap Growth	778	21	21	76	29	50
Small Growth	698	28	25	78	25	50
Total	2,765	87	71	285	79	150

We use the Kolmogorov-Smirnov (K-S) test to determine the distribution of the input and output variables. The test results are positive for all variables under all categories. This means that all the input and output variables used for this study are normally distributed.

To test the hypothesis that the DEA efficiency ratings of two groups of DMUs are different and one group of DMUs is more efficient than the other group, we undertake Banker's test proposed by Banker (1993). This test determines whether the difference in DEA ratings for two groups of DMUs (N_1 and N_2) is statistically significant. Different test statistics are used depending on the assumption that is made regarding the distribution of the efficiency rating ($1/k_o^*$).

There are two assumptions regarding the distribution of efficiency ratings:

- The distribution is exponential, or
- The distribution is half-normal

If the distribution of efficiency ratings is assumed to be exponential with means $1 + \sigma_1$ for group N_1 and $1 + \sigma_2$ for group N_2 , then the null hypothesis for no difference in the efficiency ratings of the two groups is given by $H_0: \sigma_1 = \sigma_2$. The alternative hypothesis is $H_a: \sigma_1 > \sigma_2$ if it is believed that group N_1 has a lower efficiency rating than group N_2 . In this case, the test statistic (B_e) is given by:

$$B_e = \left[\sum_{j \in N_1} (1/k_j^* - 1)/n_1 \right] / \left[\sum_{j \in N_2} (1/k_j^* - 1)/n_2 \right]$$

where:

k_j^* = DEA efficiency rating of each DMU

N_1 = DMUs in group 1

N_2 = DMUs in group 2

n_1 = number of DMUs in group 1

n_2 = number of DMUs in group 2

B_e follows an F-distribution with $2n_1$ and $2n_2$ degrees of freedom.

5 Results

The data was analysed using DEA assuming constant returns to scale. For the purpose of this study, we use the exponential distribution model of Banker's test for finding differences in efficiencies of two groups of growth funds viz. 5-star rated funds and 3-star rated funds. It is established by using K-S test that the efficiency ratings for funds studied are exponentially distributed.

We state the null hypothesis as there is no difference between the efficiency of the two sets of growth funds. That is to say that the 5-star and 3-star funds are equally efficient. As a result, our alternate hypothesis states that the 3-star growth funds are less efficient than the 5-star growth funds. Hence, our hypothesis can be written as:

$$H_0: \sigma_3 = \sigma_5$$

$$H_a: \sigma_3 < \sigma_5$$

Table 2 gives the Z scores and F scores from the K-S test and Banker's test respectively. In the fifth column we have the values of F, from an F-distribution table, above which null hypothesis can be rejected at 95% confidence level. We find that the null-hypothesis cannot be accepted in any of the categories and hence conclude that at 95% level of significance, 5-star funds are more efficient than 3-star funds.

Table 2 Results of K-S and Banker's tests of Mutual Funds

<i>Category</i>	<i>No.</i>	<i>K-S</i>	<i>Banker's</i>	<i>Sig.</i>	<i>Numerator</i>	<i>Denominator</i>
		<i>Z</i>	<i>F^a</i>	<i>Value^b</i>	<i>DoF^c</i>	<i>DoF</i>
Large Growth	50	0.765	9.787	1.60	50	50
Mid-cap Growth	50	1.662	2.371	1.60	50	50
Small Growth	50	1.982	5.173	1.60	50	50

^a Banker's F is the value returned by carrying out Banker's test, i.e. the B_e .

^b The significance value at 95% confidence level, above which the null hypothesis can be rejected.

^c DoF stands for degree of freedom, which for Banker's test equals $2n$.

Category-wise Results

Large Growth Funds:

In this category we studied 50 funds, 25 each of 5-star and 3-star rated. The mean technical efficiency was 0.526 for 5-star funds and 0.179 for 3-star funds. In this category, 3 funds from the 3-star category rank in the top 25. No 3-star fund achieves the maximum efficiency level and the 3-star funds are statistically less efficient than 5-star funds.

Mid-Cap Growth Funds:

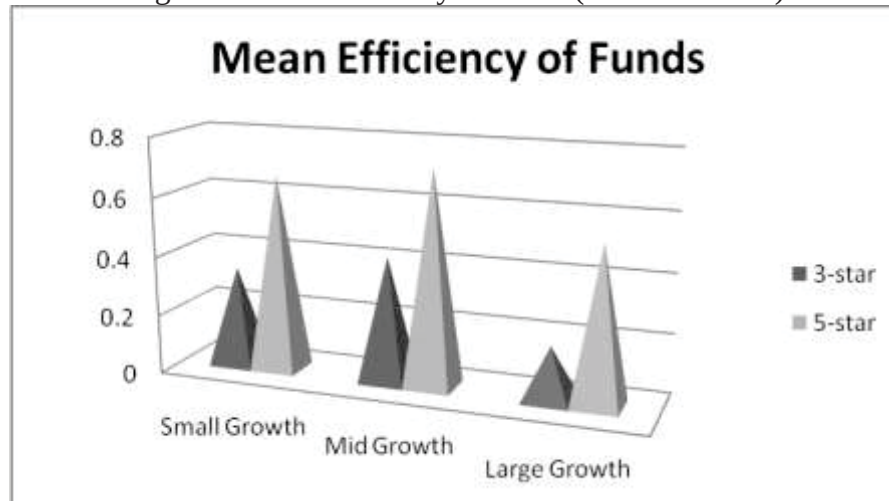
In this category we studied 50 funds, 25 each of 5-star and 3-star rated. The mean technical efficiency was 0.723 for 5-star funds and 0.421 for 3-star funds. In this category, 6 funds from the 3-star category rank in the top 25. No 3-star fund achieves the maximum efficiency level and the 3-star funds are statistically less efficient than 5-star funds.

Small Growth Funds:

In this category we studied 50 funds, 25 each of 5-star and 3-star rated. The mean technical efficiency was 0.666 for 5-star funds and 0.337 for 3-star funds. In this category, 3 funds from the 3-star category rank in the top 25. No 3-star fund achieves the maximum efficiency level and the 3-star funds are statistically less efficient than 5-star funds.

Figure 1 shows the mean efficiency of the different groups of funds

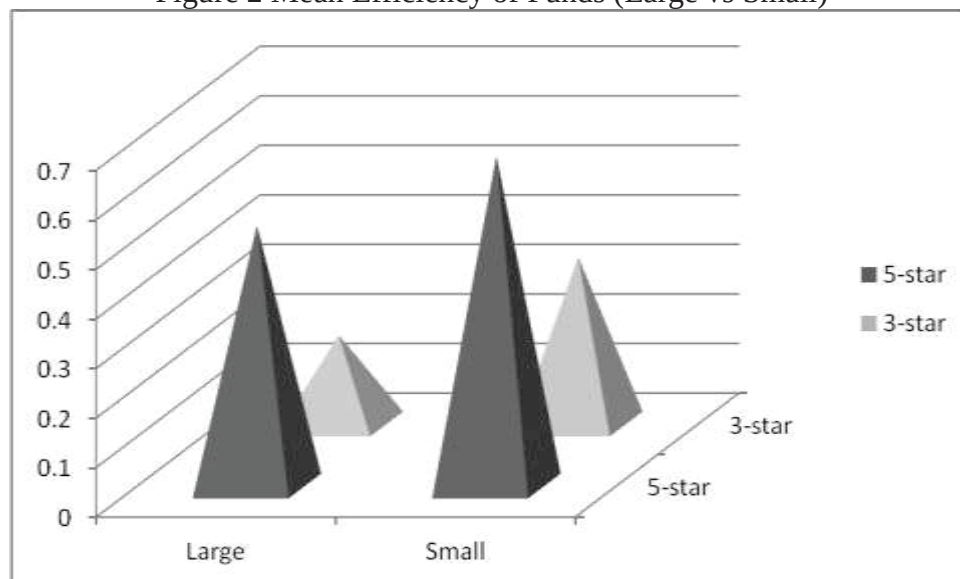
Figure 1 Mean efficiency of funds (5-star vs 3-star)



Large Growth Funds vs. Small Growth Funds:

Here, we compare 5-star rated large growth funds against 5-star rated small growth funds as well as 3-star rated large growth funds against 3-star rated small growth funds. As seen in figure 2, within the same star rating for both five and three star-rating the smaller fund outperforms the larger fund. The mean technical efficiency was 0.526 for large 5-star funds and 0.666 for small 5-star funds while for the 3-star funds the mean technical efficiency was 0.179 for large and 0.337 for small funds. It seems that smaller funds are more efficient than larger funds and this deduction is supported by Banker's test results at 95% confidence level.

Figure 2 Mean Efficiency of Funds (Large vs Small)



In Table 3, we provide the mean and the standard deviation of the technical efficiency scores and Sharpe ratio, by investment objectives. We find that small funds are relatively more efficient in utilizing their resources than large funds.

Table 3 Summary statistics of the efficiency index and Sharpe ratio

	<i>DEA-TE^a</i>	<i>DEA-TE</i>	<i>Sharpe Ratio</i>	<i>Sharpe Ratio</i>
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Large Growth	0.35	0.266	0.11	0.214
Mid-cap Growth	0.57	0.267	0.02	0.233
Small Growth	0.50	0.233	0.18	0.319

^a DEA-TE is the technical efficiency score.

Analysis of Slack Variables

As proposed by Murthi et al. (1997), we can analyse slack variables to identify the source of inefficiency. We calculate relative mean slacks (absolute mean slack in input / mean value of the inputs) to compare the marginal impact of expense ratio on portfolio return across different categories of funds. Table 4 shows the mean absolute slacks and relative slacks.

We find that absolute slack is more for the large funds as compared to the small growth funds confirming the higher inefficiency of the larger funds. However, the relative slack is more for the smaller funds possibly because of the higher expense ratio.

Table 4 Mean slacks in input: expense ration and standard deviation.

	<i>Large</i>	<i>Mid</i>	<i>Small</i>
	<i>growth</i>	<i>growth</i>	<i>growth</i>
Absolute slacks			
Exp. Ratio	0.025	0.015	0.008
Std. Dev.	0.000	0.368	0.224
Relative slacks			
Exp. Ratio	0.000	0.013	0.006
Std. Dev.	0.000	0.019	0.010

Technical Efficiency and Sharpe Ratio

To see how our DEA ranking compares to ranking generated by an existing performance appraisal measure like Sharpe ratio, we present the correlation between the two methods in

Table 5. Not surprisingly, we find a strong positive correlation between the rankings generated by two different measures in all cases. The correlations range between 0.706 – 0.948 and are statistically significant. This strong correlation is expected since the DEA measure is based on the Sharpe ratio.

Table 5 Correlation between fund ranking by Sharpe ratio and DEA efficiency

	<i>Large growth</i>	<i>Mid growth</i>	<i>Small growth</i>
5-star Funds	0.844	0.888	0.742
3-star Funds	0.948	0.706	0.804

6 Conclusion

In this study we investigate the usefulness of Morningstar fund ratings by comparing the performance of the highest rated (5-star) set of growth funds against low rated (3-star) growth funds. We apply the DEA methodology to measure mutual fund efficiency. The results obtained by using the above methodology indicate that statistically the 5-star rated funds have higher mean efficiency as compared to the 3-star rated funds. We find a significantly positive correlation between fund rankings obtained by DEA and those obtained by Sharpe index suggesting that a non-parametric approach may usefully complement traditional performance indexes.

The surprising outcome, however, is that within both the star ratings the smaller funds seem to be more efficient than the larger funds. Also it is found that even though the average efficiency of the 5-star funds are more than that of the 3-star funds there are quite a few number of 3-star funds that are equally efficient. We specifically chose the 5-star and 3-star rated funds leaving out the 4-star so as not to have any effects from the outliers of the two groups and so if the ratings are consistent no 3-star fund should be as efficient as 5-star funds. However, given our findings it can be questioned why if funds are equally efficient then some are given lower rating. The impact of Morningstar's rating is huge considering that loss of one star result in a net outflow of \$50 million from a fund. And moreover, most investment decisions by individual investors are based on the star-rating of a fund.

We suggest that future studies be carried out using multiple output DEA models that may use growth in fund size as an output. Also, a DEA measure can be developed that uses only a downside deviation measure as a proxy for risk.

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NEED FOR BUSINESS ETHICS AND CORPORATE GOVERNANCE IN THE 21ST CENTURY

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Defining the problem: Attaining system perfection, integrity of operations matched with high levels of performance and output, a dynamically structured enterprise that is poised to reach for greater heights; the need for the happening internal as well as external environment to perform to the optimum while simultaneously ensuring environmental sustainability, efficiency, ethics, norms and transparency to achieve the greatest common good requires control, prevention, detection and regulation to function as the building blocks of superior performance that can ensure overall goal congruence and can benefit the various stakeholders.

The net effects of the experience of market-based policies and deregulation surely has been and will continue to be positive. But the banking and financial failures should serve as a strong signal that, even in a world that relies much more on markets and less on governmental intervention, there is a substantial and important role for sensible financial regulation—as an enhancement for the operations of those markets. This principle applies as forcefully to the world of developing and transition economies as to the world of industrial and post-industrial economies.

Key aspects of finance make it important and special and the implications spell out the need for regulation of the financial sector in an economy. Moreover, it is of essence to develop a framework for understanding and regulation in all sectors namely Banking, Insurance, Corporate and the Securities Market, with a strong focus on prevention, detection and control. Since securities markets are the domain of investors/lenders that are of intermediate expertise with respect to information (more than depositors, less than the specialists) and since these markets rely extensively on widespread information availability, they are vulnerable to the frictions and instabilities that fraud, misrepresentation, or even just non-uniformity of presentation can create. The efficiency and efficacy of these markets relies heavily on the widespread availability of good information. These problems and vulnerabilities create a potential role for carefully crafted efficiency-enhancing regulation.

However, the mechanisms that must function in order to ensure ethical behaviour and to ensure a sound Corporate Governance structure is lacking. The fabric of sound corporate governance has been dented, ripped and torn apart. The impact is there for all to see- in Corporate scams, in stock-market rigging, in a teetering Banking system and in frauds in the Insurance sector. The problem, when perceived from various angles brings to light the fact

that systemic inefficiency and corruption must be weeded out with strong control mechanisms in place. The basic problem is therefore the need for strongly functioning mechanisms of control, prevention, detection and regulation that will ensure systemic efficiency and put a stop to systemic failures.

Hypothesis: There is a strong need to ensure sound Business Ethics and Corporate Governance in the various sectors by implementing sound control measures, mechanisms to ensure prevention and detection of frauds and sound regulation that is practically applied, so as to ensure greater transparency in dealings and operations.

Objectives:

- i) To analyse recent happenings in various sectors that underlie the need for sound business ethics and Corporate Governance.
- ii) To gather primary data from people working in diverse fields with the intention of capturing their viewpoints on the subject under consideration.
- iii) To analyse the changes in the external environment which emphasise on stringent measures to ensure ethics and Corporate Governance; such as the increasing recourse to forensic audit, introducing Basel III norms in the Banking Sector, the clarion call for transparency, anti-corruption movements, etc

Procedure: Apart from gathering primary data with the help of a well-drafted questionnaire that captured the viewpoints with cited examples on the need for increased business ethics and Corporate Governance, secondary data from books, editions, newspapers and other reliable sources like Governmental Publications and reliable web-sites were gathered to come to an apt summarization of the scenario.

Findings in brief: Modern day corporations, characterized by separation of ownership and control, have emerged as the most powerful institutions of contemporary society, responsible for creating and distributing a large part of wealth. The spate of corporate scandals in early eighties, viz. BCCI, Maxwell, Poly Peck, followed by the East Asian crisis, etc. have indeed been eclipsed by the corporate collapses in the Western World beginning with Enron. The post-Enron era, however, gave real fillip to devise the structure for ensuring accountability of corporations to diverse stakeholders. Elsewhere in the world, the emergence of market-oriented mechanism combined with the liberalization and privatization resulting into the huge flow of cross border movement of funds enlivened the interest in corporate governance.¹

In India, several provisions in the Companies Act, for example, a) Disclosing the interest of Directors in contracts in which they are interested. b) Abstaining from exercising voting rights in matters they are interested and c) Statutory protection to auditors who are supposed to go into the details of the financial management of the Company and report the same to the shareholders of the Company, etc have been incorporated with a view to ensure ethics and governance.

There are grey areas where the law is silent or where regulatory framework is weak, which are manipulated by unscrupulous persons like Ketan Parikh and Harshad Mehta. The Securities and Exchange Board of India (SEBI) has jurisdiction only in case of Limited and listed Companies and are concerned only with their protection. The serious Fraud Investigation Officer (SIFO) in the Department of Company Affairs (DCA) has been investigating several 'Vanishing Companies'. By 2003, SEBI had identified 229 'Vanishing Companies' which tapped the Capital Market, collected more than Rs.800 crores from the

Public and subsequently became untraceable. In terms of reforms and development, Indian Capital Markets are at par with the best in the world. However, three ingredients need to be improved, namely; supervision, strict accountability and appropriate punishment.

Financial Liberalisation is a phenomenon that is almost all pervasive in the world today. While liberalization has led to substantial benefits in terms of increased transparency, it has ushered in opportunities of corporate misgovernance. Recent trends through the 1990s' in India and abroad reveal how corporate governance has not been effective, permitting unscrupulous and opportunistic individuals to manipulate the market in their favor. The process of financial market regulation ensures that important guidelines are issued regarding how primary dealers (brokers) should operate with regard to mode of operation, conduct, litigation, amount of business to be handled, management of risk, internal control, etc. These security scams and financial scandals discussed here involved the manipulation of huge amounts of money. The perpetrators of these gross transgressions had such a comprehensive knowledge of how the system worked that they manipulated it to their advantage, operating in an opportunistic manner.

The entry of Foreign Institutional Investors led to a massive bull run, which saw the secondary market recover from the scam even though badla was banned. The IPO bubble which lasted three years from 1993 to 1996 burst when prices of listed companies began to crash. So huge was investors' disappointment that the primary market remained dead for the next two years, almost until the beginning of 1999.

The 176-point Sensex crash on March 1, 2001 came as a major shock for the Government of India, the stock markets and the investors alike. More so, as the Union budget tabled a day earlier had been acclaimed for its growth initiatives and had prompted a 177-point increase in the Sensex. This sudden crash in the stock markets prompted the Securities Exchange Board of India (SEBI) to launch immediate investigations into the volatility of stock markets. SEBI also decided to inspect the books of several brokers who were suspected of triggering the crash.

Meanwhile, the Reserve Bank of India (RBI) ordered some banks to furnish data related to their capital market exposure. This was after media reports appeared regarding a private sector bank having exceeded its prudential norms of capital exposure, thereby contributing to the stock market volatility. The panic run on the bourses continued and the Bombay Stock Exchange (BSE) President Anand Rathi's (Rathi) resignation added to the downfall. Rathi had to resign following allegations that he had used some privileged information, which contributed to the crash. The scam shook the investor's confidence in the overall functioning of the stock markets. By the end of March 2001, at least eight people were reported to have committed suicide and hundreds of investors were driven to the brink of bankruptcy.

The scam opened up the debate over banks funding capital market operations and lending funds against collateral security. It also raised questions about the validity of dual control of co-operative banks. The first arrest in the scam was of the noted bull Ketan Parekh (KP), on March 30, 2001, by the Central Bureau of Investigation (CBI). Soon, reports abounded as to how KP had single handedly caused one of the biggest scams in the history of Indian financial markets. He was charged with defrauding Bank of India (BoI) of about \$30 million among other charges.

KP's arrest was followed by yet another panic run on the bourses and the Sensex fell by 147

points. By this time, the scam had become the 'talk of the nation,' with intensive media coverage and unprecedented public outcry.

Findings indicate that investors would pay 11% more for the shares of a well-governed Canadian Company, 12% more for the shares of a well-governed UK Company and 14% more for the shares of a well-governed US Company, compared to shares of a Company with similar financial performance but poorer governance practices. The premiums rise to 16% for a well governed Italian Company, 21% for a Japanese Company, 24% for a Brazilian Company, 38% for a Russian Company and, at the top of the scale with the highest premium for good governance, 41% for a well-governed Moroccan Company. It is therefore the investor's perception and belief that corporate governance is important and that belief leads to the willingness to pay a premium for good corporate governance.²

Some of the significant papers in recent years which have found evidence of a positive link include Gompers et al and Deutsche Bank. Gompers et al examined the ways in which shareholder rights vary across firms. They constructed a 'Governance Index' to proxy for the level of shareholder rights in approximately 1500 large firms during the 1990s. An investment strategy that bought firms in the lowest decile of the index and sold firms in the highest decile of the index would have earned abnormal returns of 8.5% per year during the sample period. They found that firms with stronger shareholder rights had higher firm value, higher profits, higher sales growth, lower capital expenditures and made fewer corporate acquisitions. Deutsche Bank AG explored the implications of corporate governance for portfolio management and concluded that corporate governance standards are an important component of equity risk.³

The International Corporate Governance Network (ICGN), founded in 1995 at the instigation of major institutional investors, represents investors, companies, financial intermediaries, academics and other parties interested in the development of global corporate governance practices. One of its objectives is to facilitate international dialogue on issues of concern to investors. Through this process, the ICGN believes, companies can compete more effectively and economies can best prosper. The ICGN also believes that it is in the public interest to encourage and enable the owners of corporations to participate in their governance. The ICGN's charter empowers it to adopt guidelines when it feels they can contribute to achieving this objective.⁴

In May 1999 ministers representing the 29 Governments which comprise the Organisation for Economic Cooperation and Development (OECD) voted unanimously to endorse the OECD Principles of Corporate Governance. These principles were negotiated over the course of a year in consultation with key players in the market, including the ICGN. They constitute the chief response by Governments to the G-7 Summit Leaders' recognition of Corporate Governance as an important pillar in the architecture of the 21st century global economy. The principles were welcomed by the G7 leaders at the Cologne summit in June 1999 and are likely to act as signposts for activity in this area by the International Monetary Fund, the World Bank, the United Nations and other international organizations.⁵

In India, the apex governing body in the Banking sector, The Reserve Bank of India (RBI) has issued guidelines for the formulation of Best Practices Code (BPC) by banks to prevent frauds. The norms have been issued to bring about a certain minimum level of uniformity with regard to the content and coverage of the code. However, The BPC modelled by select banks lacked uniformity in their content and coverage and was not prepared as envisaged by

the Mitra Committee (on legal aspects of bank frauds), prompting RBI to issue these norms.(as told by RBI in a notification to banks).

As per the norms, the BPC should be a comprehensive and homogeneous document and take into account the instructions relating to the common fraud prone areas and their prevention issued to banks by RBI from time to time, the notification said.

The Code should also highlight the recommendations of the Ghosh Panel and the Mitra Committee. It should take into account relevant recommendations of Narang Committee's study of large value frauds, Narasimham Panel on banking sector reforms and recommendations of the estimate committee on prevention of frauds in banks.

The Code should cover all the functional areas like cash, safe custody of other valuables, deposit accounts, investment portfolio, credit portfolio, foreign exchange transactions and treasury operations. The BPC may also incorporate practices that would help prevention of losses to its customers and include suitable guidance to such customers.

The BPC should be periodically revised and updated in the light of the experience gained, fresh instructions from the RBI and suggestions made by internal/external auditors. The BPC should take into account the instructions of the Central Vigilance Commission, if any, issued from time to time.

The most memorable incidents in earth-changing events are sometimes the most banal. In the rapidly spreading scandal of LIBOR (the London inter-bank offered rate) it is the very everydayness with which bank traders set about manipulating the most important figure in finance.⁶

What may still seem to many to be a parochial affair involving Barclays, a 300-year-old British bank, rigging an obscure number, is beginning to assume global significance. The number that the traders were toying with determines the prices that people and corporations around the world pay for loans or receive for their savings. It is used as a benchmark to set payments on about \$800 trillion-worth of financial instruments, ranging from complex interest-rate derivatives to simple mortgages. The number determines the global flow of billions of dollars each year. Yet it turns out to have been flawed.⁷

As many as 20 big banks have been named in various investigations or lawsuits alleging that LIBOR was rigged. The scandal also corrodes further what little remains of public trust in banks and those who run them.⁸

A second problem is that those involved in setting the rates have often had every incentive to lie, since their banks stood to profit or lose money depending on the level at which LIBOR was set each day. Worse still, transparency in the mechanism of setting rates may well have exacerbated the tendency to lie, rather than suppressed it. Banks that were weak would not have wanted to signal that fact widely in markets by submitting honest estimates of the high price they would have to pay to borrow, if they could borrow at all.⁹

The Reserve Bank of India has created a plan whereby it will monitor the global books of Indian Banks as regards its overseas operations. State Bank of India, ICICI Bank and Bank of Baroda are among the prominent banks that will face the RBI Inspection as some banks have as high as a fifth of their total assets beyond the shores. Revenues from overseas operations

contribute about 5% of revenues for State Bank of India and about 12% for Bank of Baroda, Bloomberg data shows. For ICICI Bank, the share of overseas assets to its total is at 22%. The inspection exercise is a review of whether a Bank is following all the norms laid down by the regulator in letter and spirit. When RBI begins its exercise, it will be following the footsteps of some overseas regulators such as Hong Kong Monetary Authority and UK's Financial Services Authority which visits Indian offices of banks based in their home country.¹⁰

The various sectors are inter-linked and hence the need for the regulators to have apex level meetings wherein vital aspects of control and regulation are discussed. Ever since Banks entered the Insurance business, substantial funds enter the banking system from insurance business. Money laundering through integration and several other ways necessitates strengthening of norms. Although the Basel II norms have become mandatory, the Basel III norms would strengthen the control mechanism.

The Lehman Brothers crisis, the Spectrum scam, the Satyam scam, Rajat Gupta being held guilty for passing insider information, the wanton destruction of mangroves in violation of environmental norms by Builders' in Mumbai, the Adarsh Housing scam and so many more that may possibly be termed as skeletons overflowing from the cupboard speak volumes for individual conscience to find its way in a collective conscience. Confronted with an ethical dilemma, it is time we woke up to the fact that stakeholder welfare must assume priority over profits. The truth is of course driven home in facts that speak for themselves.

The 2012 Brics summit held in Delhi discussed animatedly on the global governance deficit. The summit categorically stated, 'Over the last 20 years, environmental treaties have not been able to develop a consensus on patterns of natural resource use. New values and norms will be needed for the transformation from a consumerist society based on freedom of choice to a more constrained societal model that provides rewards to encourage conservation and discourage waste in industrialized countries, while the poor countries reshape growth pathways to secure human well-being'.¹¹

India's Capital Market has shown phenomenal growth since 1980. Approved international Institutional Investors have been permitted access to the Capital market. The Securities and Exchange Board of India (SEBI) was set up in 1988 and was given statutory status in 1992. The SEBI Act, empowers SEBI to regulate the business in stock exchanges, regulate mutual funds and intermediaries associated with the securities market, prohibit fraudulent and unfair trade practices relating to securities and regulate substantial acquisition and take-over of Companies. We have achieved International Standards in terms of Financial Viability, Competence, Technology, Prudential Requirements, Regulation and Credibility.

The Securities and Exchange Board of India through its Committee chaired by Shri Kumarmangalam Birla was the first formal and comprehensive attempt to evolve a code of Corporate Governance. The code was further comprehensively revised by the Narayanamurthy Committee Report which was based on the experience gained on the implementation of Corporate Governance Code. The growth of the Capital Market in India would only be sustained by the practice of good corporate governance not only in letter, but also in spirit.¹²

OECD ministers endorsed the OECD principles of corporate governance in 1999. In the following years, the principles became an international benchmark for parliaments,

supervisory authorities, stock exchanges, investors, companies and other stakeholders worldwide. In 2004, OECD published a revised version of the principles based upon a wide range of experiences from countries around the world. The 2004 version is organized into six sections with the following headlines:

Ensuring the basis for an effective corporate governance framework.

The rights of shareholders and key ownership functions.

The equitable treatment of shareholders.

The role of stakeholders in Corporate Governance.

Disclosure of transparency, and

The responsibilities of the Board.¹³

A code of ethics is a written guide to acceptable and ethical behavior (as defined by an organization) that outlines uniform policies, standards, and punishments for violations. However, codes cannot possibly cover every situation. Companies must also create an environment in which employees recognize the importance of following the written code. Managers must provide direction by fostering communication, actively encouraging ethical decision making, and training employees to make ethical decisions. Assigning an ethics officer who coordinates ethical conduct gives employees someone to go to if they aren't sure of the right thing to do. An ethics officer meets with employees and top management to provide ethical advice; creates and maintains an anonymous confidential service to answer questions about ethical issues; and takes actions on ethics code violations. Even employees who want to act ethically may find it difficult to do.

Unethical practices often become ingrained in an organization. Employees with high personal ethics may take a controversial step called whistle blowing—informing the press or government officials about unethical practices within one's organization. Whistle blowing can have serious repercussions for an employee. When firms set up anonymous ethical hotlines to handle ethically questionable situations, employees may be less reluctant to speak. When firms create an environment that educates employees and nurtures ethical behavior, less whistle blowing is needed because fewer ethical problems arise.

However, there is a lot of lacuna that needs to be bridged. India does not have a law to protect the whistleblower, even though a bill for the purpose is in the pipeline. The issue of protection for whistleblowers caught the attention of the entire nation when National Highways Authority of India (NHAI) engineer Satyendra Dubey was killed after he wrote a letter to the office of then PM A B Vajpayee detailing corruption in the construction of highways.

In the letter, he had asked specifically that his identity be kept secret. Instead, the letter was forwarded to various concerned departments without masking Dubey's identity. Dubey's murder led to a public outcry at the failure to protect him. As a result, in April 2004, the Supreme Court pressed the government into issuing an office order, the Public Interest Disclosures and Protection of Informers Resolution, 2004 designating CVC as the nodal agency to handle complaints on corruption.

However, over a year later, Manjunath Shanmugham, an IIM graduate and a sales manager of the IOC was murdered on Nov 19, 2005 for exposing the racket of adulteration of petrol and the mafia behind it. This brought renewed focus on need for a law to protect whistleblowers.

Although there are many areas that need to be included in the proposed Jan lokpal bill of India yet extending a strong and effective protection to the whistleblowers, who raise their voices against the corruption in India, needs a specific mention and adoption.

We have to develop Techno Legal Mechanisms that can safeguard the Information provided by and Details of Whistleblowers, opines Praveen Dalal, a leading lawyer. If lives of Whistleblowers cannot be Safeguarded, Corruption in India can never be eliminated.

India has a bad reputation of “Ignoring Formulation of Essential Laws” and Jan Lokpal and Whistleblowers Protection Laws are classic examples of the same. If Parliament of India keeps on functioning only through “Public Disruptions and Agitations”, that would be a death knell of Democracy and Parliamentary Supremacy. It would be better if parliament of India enacts a strong and effective whistleblowers protection law before this cause is also picked up by Indian masses and it forces again the parliament to succumb to its pressure. This is not the way any Parliament, especially the Parliament of the largest Democracy of the World should function, says Dalal.¹⁴

Several countries have already put in place laws to protect whistleblowers or are in the process of doing so. However, the level of protection and the way in which the law operates differs from country to country. For instance, the US was one of the earliest to have the Whistleblower Protection Act of 1989, while the UK has the Public Interest Disclosure Act of 1998, and Norway has a similar law in place since January 2007.

Moreover, an effective internal control system is necessary to ensure corporate accountability, accurate financial reporting and to prevent fraud. India Fraud Survey, 1995, published by KPMG India's Forensic Accounting Division, revealed that poor internal controls are considered the cause of frauds in 71 percent of the cases. In the major corporate collapses in the 1990s, a recurring theme has been the failure of the internal control system. For example, investigations by the Joint Parliamentary Committee and the Committee appointed by the Reserve Bank of India into the multi-billion security scam that affected several banks in 1992-93, clearly identified the absence as well as failure of internal control systems as a major cause. Many accounting firms were also indicted in the investigations as having failed in their duty. Internationally as well, failure of internal controls was given as the major reason for the collapse of the BCCI, the Barings Bank and the Daiwa Bank. The continuing growth of information technology has only increased the need for better internal controls in detecting and preventing fraud.

Over the past two years, industrial countries have experienced bouts of severe financial instability. Emerging economies (EEs), once considered more vulnerable, have been remarkably resilient. The performance of China, India, and Brazil is an important engine of expansion for today's global economy. High growth and financial stability in EEs are helping to facilitate the massive adjustment facing industrial countries. But that growth has significant longer-term implications. If the current pattern is sustained, the global economy will be permanently transformed.

Specifically, not much more than a decade is needed for the share of global GDP generated by developing economies to pass the 50% mark when measured in market prices.

So it is important to know whether this breakout growth phase is sustainable. The answer comes in two parts. One depends on EEs' ability to manage their own success; the other

relates to the extent to which the global economy can accommodate this success. The answer to the first question is reassuring; the answer to the second is not. While still able to exploit the scope for catch-up growth, EEs must undertake continuous, rapid, and at times difficult structural change, along with a parallel process of reform and institution building.

With government policy remaining on course, we should expect a gradual strengthening of endogenous domestic growth drivers in EEs, anchored by an expanding middle class.

Combined with higher trade among them, their future is one of reduced dependence on industrial-country demand, though not a complete decoupling. Distribution as well as growth matter. EEs still need to manage better their growing domestic tensions, which reflect rising income inequality and uneven access to basic services. A failure on this front would derail their strengthening domestic and regional growth dynamics.

The flow of knowledge, finance, and technology that underpins sustained high growth rates in EEs is closely linked to an open, rule-based, and globalised economy. Political and policy narratives are becoming more domestic and narrow, while the global agenda and the pursuit of collective common interests are having greater difficulty being heard. These challenges will grow. Managing an increasingly complex set of transnational connections is an even bigger challenge in a multi-speed world that is being turned upside down. Such a world needs better global governance, as well as overdue institutional reforms that give EEs proper voice in global institutions. In the absence of such changes, the global economy may bounce from one crisis to another without a firm hand on the rudder to establish an overall sense of direction. The result is what economists call Nash equilibria, or a series of suboptimal and only quasi-cooperative outcomes. Where does all this leave us? EEs will be called on to play an even larger role in a multi-speed global economy characterised by protracted rehabilitation of over-extended balance sheets in industrial countries. Left to their own devices, they are up to the task. But they do not operate in a vacuum. EEs' ability to provide the growth lubrication that facilitates adjustment in industrial countries is also a function of the latter countries' willingness to accommodate tectonic shifts in the operation and governance of the global economy. Let us hope that these global issues receive the attention they require.¹⁵

Conclusion: Corporate Governance is about transparency, openness, accountability, integrity, trusteeship of management and ethical corporate behaviour in all respects. It is about ensuring that a business house performs well through practices of fair and ethical principles and that its investors and shareholders receive a reasonable and equitable return for their investments. In a broader context, the expression corporate governance is used to refer to a wide range of rules, regulations, policies and practices that the Board of Directors adopt to conduct themselves and to discharge their duties and responsibilities to ensure profitability, sustainability and sound and ethical business operations of an organization.¹⁶

The essence of the argument is that the occurrence and reoccurrence of such security scams and financial scandals can be attributed to the need for a stronger mechanism of sound ethics and corporate governance, despite the existence of functioning regulatory authorities empowered with requisite legal sanctions. In fact, Corporate Governance must permeate all areas. Take Sports, for instance. Positive initiatives like the National Sports Development Bill, 2001, are stymied. The Bill seeks greater transparency in sports bodies, an age and tenure limit for office bearers and 25% reservation for sportspersons in these bodies, among other measures. Last year, it was rejected first by the Indian Olympic Association and the National

Sports Federation and then by the Cabinet Review Committee. Why that happened might be explained by the fact that around 40 sports associations in India are headed by politicians or their associates, sometimes for decades. Five of the ministers at the Cabinet review were among them. The reason given for the opposition was autonomy and resisting government control. There is little case for the latter, but even less for continuing with the status quo. Those fretting about graft should also look at Indian sport.¹⁷

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Program -Poster Sessions

Business

Room 607 9:00-10:30, March 16

334

A Comparative Study of Service Marketing Mix Factors Affecting on Consumers' Purchasing Decision towards Coffee Shops in Thailand

Rangsan Nochai | *King Mongkut's Institute of Technology Ladkrabang*

Titida Nochai | *Assumption University*

116

Corporate Socioal Responsibility in It Industry and Sustainability Strategy for Organisational Excellence

Suresh B K Naidu | *Tumkur University*

275

Business Beyond Boundaries (B3b): E- Commerce Inovations & Challenges

Suresh B K Naidu | *Tumkur University*

A Comparative Study of Service Marketing Mix Factors Affecting on Consumers' Purchasing Decision towards Coffee Shops in Thailand

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ABSTRACT

The purpose of this study was to make a comparative study in service marketing mix factors affecting on consumers' purchasing decision towards top three coffee shops: Starbucks, Black Canyon and True Coffee in Bangkok area. Questionnaires were used to collect data from 400 people by using of quota sampling and convenience sampling. Data was analyzed by using Logistic Regression Analysis. The findings were shown that there were four factors affecting on consumers' purchasing decision towards Starbucks, Black Canyon, and True Coffee as product, price, physical evidence, and people. In these factors, respondents focused on famous of coffee shop, reasonable price of coffee, menu and price available, comfortable chair and table, design-decoration, and friendliness of staffs. Therefore, the trader in coffee shop market can enhance more effectiveness of customers need, increase customer base and make more market shares in this segmentation by focusing on the strategy in price, launching of new variety menu and decoration of coffee shop in modern style with good atmosphere. These strategies should be developed continuously.

Keywords: Coffee Shop, Logistic Regression Analysis, Consumers Purchasing Decision, Service Marketing Mix

1 BACKGROUND

The coffee industry and the coffee shop business have boomed in recent years, especially with regards to specialty coffees. According to a National Coffee Association Annual Drinking Trends Survey, specialty coffee consumption has risen from 9 percent in 2000 to 16 percent in 2004. Every day, more than half of the adult population drinks coffee, 108.9 million people (sbdnet.org, 2012). Thailand is one of the leaders of coffee industry in South East Asia where the consumer market grows constantly. A good index that reflects this growth is the increasing number of independent café which pop up in every corner of the country (coffeetandi.com, 2012). Now, Coffee is becoming a popular beverage in Thailand and plays an important role in Thai consumers' daily lives such as breakfasts, or short break. Thai people have breakfasts with coffee beverage before they go for work (Naewna Newspaper, 2010). One of the most popular ways to enjoy coffee in Thailand is cold or iced. Coffee has actually been grown and cultivated in Thailand for hundreds of years, but the

industry began to change in the 1960s. Office of Agricultural Economics of Thailand reported that the import quantity of coffee beans in Thailand has increased from 180,875 tons in 2006 to 352,219 tons in 2010. The percentage of grow up was 79.8% from year 2006 to 2010 (oae.go.th, 2011). The reason for this is that Thailand was reported to import eight times more coffee than it was actually exporting. Thailand produces both Robusta and Arabica coffee beans, but 99% of the beans that are produced in Thailand are Robusta.

Since coffee is becoming popular internationally, there are also many new coffee shops popping up (articledashboard.com, 2012). The market value of coffee shops in Thailand is continually increased from 5,100 million baht in 2007 to 6,250 million baht in 2010. The percentage of grow up is 22.55 percent from year 2007 to 2010. The premium coffee shop business has existed for several years. There has been rapid growth of both small and large coffee shops. Both local and foreign entrepreneurs have increasingly entered the coffee market in Thailand, including Starbucks, all over the globe. Some of coffee shops are invest by Thai investors as Black Canyon Coffee and True Coffee are owned by Thai investor. Coffee growth rates remained strong in Thailand during 2011 (marketinfo.co.th, 2011). The market shares of coffee shops in Thailand are shown in Table 1.

Table 1: Market share of coffee shop market in Thailand, 2007 – 2010

Coffee shop	Year				Average	Rank
	2007	2008	2009	2010		
Starbucks	24.47%	26.93%	27.33%	28.11%	26.71%	1
Black Canyon	12.49%	12.82%	12.20%	11.38%	12.22%	2
Coffee World	4.61%	4.46%	4.40%	4.30%	4.44%	3
True Coffee	3.06%	2.99%	3.71%	3.50%	3.32%	4
Café' D-oro	2.59%	2.62%	2.73%	2.64%	2.65%	5
94 Coffee	2.43%	2.85%	1.90%	3.12%	2.58%	6
BannRai Coffee	1.76%	1.12%	0.61%	1.21%	1.18%	7

Table 1 indicated that Starbucks has the highest market shares in this coffee shop market and also increased every year. The next ranks are Black Canyon, Coffee World, and True Coffee. But their market shares are fluctuated. In 2010, these coffee shops expanded more their branches in Bangkok area, capital of Thailand. Starbucks expanded more 26 branches, Black Canyon and True Coffee expanded more 13 branches and emphasize on education center area (marketinfo.co.th, 2011). Due to the fact, more in branches means more in profits also.

At present, coffee shop business is one of businesses that the growth rate is a fast sector and looks likely to continue its development into the future. Each coffee shop needs their own business marketing strategy as marketing mix factors (place, price, product, and promotion) but it is not enough to support coffee shop to meet with success. Therefore, business strategies focus on service marketing mix factors (place, price, product, promotion, people, process, and physical evidence). People are the one of essential ingredient to any service provision is the use of appropriate staff and people. Process is the systems used to assist the organization in delivering the service and Physical Evidence is the element of the service mix which allow the consumer to make judgments for repurchase on the organization's goods and services. These service marketing mix factors are the factors that can lead the successful through the organization (learnmarketing.net, 2011). Starbucks, Black Canyon and True Coffee are famous coffee shops in Thailand as shown in Table 1. Starbucks is a coffee brand from USA but Black Canyon and True Coffee are Thai coffee brands. These three coffee brands are different so much in term of market shares. Moreover, True Coffee positions itself

as the competitor with Starbucks but the market shares is still less than Starbucks (marketinfo.co.th, 2011). It is very interesting that why is different so much, and which factors make it different. In this research will focus on a study of service marketing mix factors on customer purchasing decision toward Starbucks, Black Canyon, and True Coffee.

2 OBJECTIVES OF RESEARCH

The purpose of this research was to make a comparative study in service marketing mix factor affecting on consumers' purchasing decision towards top three coffee shops: Starbucks, Black Canyon and True Coffee in Thailand.

3 LITERATURE REVIEW

Different theories and models associated with the independent variables and dependent variable will be looked at so as to establish a conceptual framework of this research.

3.1 Service Marketing Mix

Careful management of product, price, place, and promotion will clearly also be essential to the successful marketing of services. However, the strategies for the 4Ps require some modifications when applied to services because services are usually produced and consumed simultaneously. Customers are often present in the firm's factory, interact directly with the firm's personnel and are actually part of the service production process. Further, services are intangible; customers will often be looking for any tangible cue to help them understand the nature of the service experience (Zeithaml et al, 2006). The Common Service Marketing Mix (7Ps) Platforms are shown in Table 2.

Table 2: Common Service Marketing Mix (7Ps) Platforms

Service Marketing Mix Factors	Controllable variables
Product	Quality, Features, Options, Style, Packaging, Sizes, Services, Returns, Warranties, and Brand
Price	List price, Discounts, Allowances, Payment period, Credit terms, and Differentiate
Place	Channels, Coverage, Location, Inventory, Transport, Intermediaries, and Managing channels
Promotion	Advertising, Personal Selling, Sales Promotion, Publicity, and Internet/web strategy.
Physical Evidence	Material used, Arrangement of objects, Lighting/Shadows, Color, Temperature, Noise, and Other tangibles such as reports, business cards, statement guarantees, etc.
Process	Policies & Procedures, Flow of activities, Number of steps, Factory/Delivery cycle time, Training & Rewarding system, and Customer involvement
People	Service Provider, Customer being serviced, Other employees and customers

Source: Zeithaml, Bitner, and Gremler, 2006, pp.26.

3.1.1 Product

A product can be an idea, a service, a goods or any combination of these three (Pride & Ferrell, 1989). Product is defined as the goods-and-services combination the company offers to the target market (Kotler & Armstrong, 2001). Moreover, product has various variables such as product variety, quality, design, features, brand name, packaging, sizes, warranties, returns (Kotler, 2003). Product is the first element of the marketing mix that represents the

basic offering being made to consumers, which consists of product variety, quality, design, features, brand name, packaging, size, warranties, and returns (Kotler and Keller, 2006).

3.1.2 Price

Price is defined as the amount of money or some product or service, given in exchange for something in its price. In other word, price is exchanged for the product (Zikmund & Amico, 1996). In term of marketing mix, price consists of list price, discounts, allowances, payment period, and credit term, which marketers have to consider (Kotler & Keller, 2006). Price is typically one of the important factors influencing demand for goods or service (Teas & Agarwal, 2000). Moreover, price has a positive effect on perceived quality, but negative effect on value to buy. When setting the price, the marketers have to consider how consumer perceptions on price and how these perceptions affect consumers' purchasing decision (Kent, 1996). A consumer compares products on cost and on utility they expect to come from the product features (Assael, 1993).

3.1.3 Place

Place is the marketer's strategy for making a product available and can influence whether and when customers encounter the product. A product that is widely available or easy to buy will enter the consideration set of more consumers. Availability is especially important for routine and limited decision making. The types of channels through which a product is offered also influence consumers' perception of the product's image (Churchill & Peter, 1998).

3.1.4 Promotion

Promotion is about communicating with the consumer, and about persuading people to try our product or service. In addition, it is usually much more concerned with attitude change. Because attitudes are learned, promotional activities can offer new information to the consumer. Promotion consists of sales promotion, advertising, sales force, public relationship, and direct marketing (Kotler & Keller, 2006). The objective of promotion strategies should be related the product to the consumer's self-concept. If the promotion strategy effectively connects the product information to consumers' personal goal and values, as well as, desired self-relevant consequences within the context of personal situations, it will be perceived as personally relevant. Messages, which are personally relevant, are more likelihood lead to increased interest, positive attitudes, positive purchase intentions, and ultimately purchase behavior (Timothy, 1995).

3.1.5 Physical Evidence

The physical environment of the service can clearly affect customer's perceptions of their service experience. The environmental dimensions of the service would include the ambient conditions (temperature, air quality, noise, music, etc.) and the utilization of the space (equipment, layout, furnishing), as well as any signs, symbols and artifacts (Zeithaml et al, 2006).

3.1.6 Process

Process is the actual procedures, mechanisms, and flow of activities by which the goods and services are delivered and are classified among operating systems. The actual delivery steps that the customer experiences, or the operational flow of the service, also give customers evidence on which to judge the goods and service (Zeithaml et al. 2006).

3.1.7 People

People are an essential ingredient in service provision; recruiting and training the right staff is

required to create a competitive advantage. Customers make judgments about service provision and delivery based on the people representing organization. People are one of the few elements of the service that customers can see and interact with. Staffs require appropriate interpersonal skills, attitude, and service knowledge in order to deliver a quality service (learnmarketing.net, 2011).

3.2 Consumer purchasing decision

Consumer buying decision is the process people go through to decide what products to purchase. It consists of five stages, which are (1) problem recognition, (2) information search, (3) evaluation of alternatives, (4) purchase decision, and (5) post-purchase behavior (Skinner, 1994). However, customers do not always pass through all five stages in buying a product. They may skip or reverse some stages.

3.3 Affecting Consumer Decision-Making

Consumer who prefers to buy a product is confronted with many related decision: product, brand, price range, and point of sale, time of purchase, volume of purchase and method of payment (Dubois, 2000). By the reference groups affect product and brand decision also depends on whether the buyer typically consumes the product in private or in public and whether it is a necessity or a luxury. Moreover, reference groups influence product category choice for luxuries but not necessities and influence brand choice for products consumes in public but not those consumed in private (Hoyer & MacInnis, 2004). Demographic, social and psychological factors are not only helpful for marketers in developing consumer profiles and adapting marketing strategies to them, but they also help the company in understanding how consumer use the decision process (Hawkins, 1992).

3.4 Logistic regression analysis

Logistic Regression allows us to predict a discrete outcome, such as group membership, from a set of variables. Generally, the dependent variable in logistic regression is categorical variable. Logistic regression estimates the odds of a certain event occurring (Garson, 2009). Logistic regression makes no assumption about the distribution of the independent variables. The relationship between the independents and dependent variable is not a linear function. The logistic response function is

$$P(Y = 1) = \frac{e^{\beta_0 + \beta_1 X_1 + \dots + \beta_p X_p}}{1 + e^{\beta_0 + \beta_1 X_1 + \dots + \beta_p X_p}},$$

β_i are logistic coefficients to be estimated; $i = 1, 2, \dots, p$

For logistic regression, the "parameter estimate" is the B coefficient used to predict the log odds (logit) of the dependent variable. The B coefficients with 0 indicate that the given explanatory variable does not affect the logit (that is, makes no difference in the probability of the dependent value equalling the value of the event, usually 1); positive or negative B coefficients indicate the explanatory variable increases or decreases the logit of the dependent. Exp (B) is the odds ratio for the explanatory variable. The odds ratio for a given independent variable represents the factor by which the odds (event) change for a one-unit change in the independent variable. An Exp (B) > 1 means the independent variable increases odds (event). An Exp (B) < 1, then the independent variable decreases odds (event). Thus, to find the influential factors on the dependent variable, it will consider the only factors which have the significance and the value of Exp (B) > 1 (Garson, 2009).

4 RESEARCH MODEL

According to the literature review, the research model is formed as shown in Figure 1.

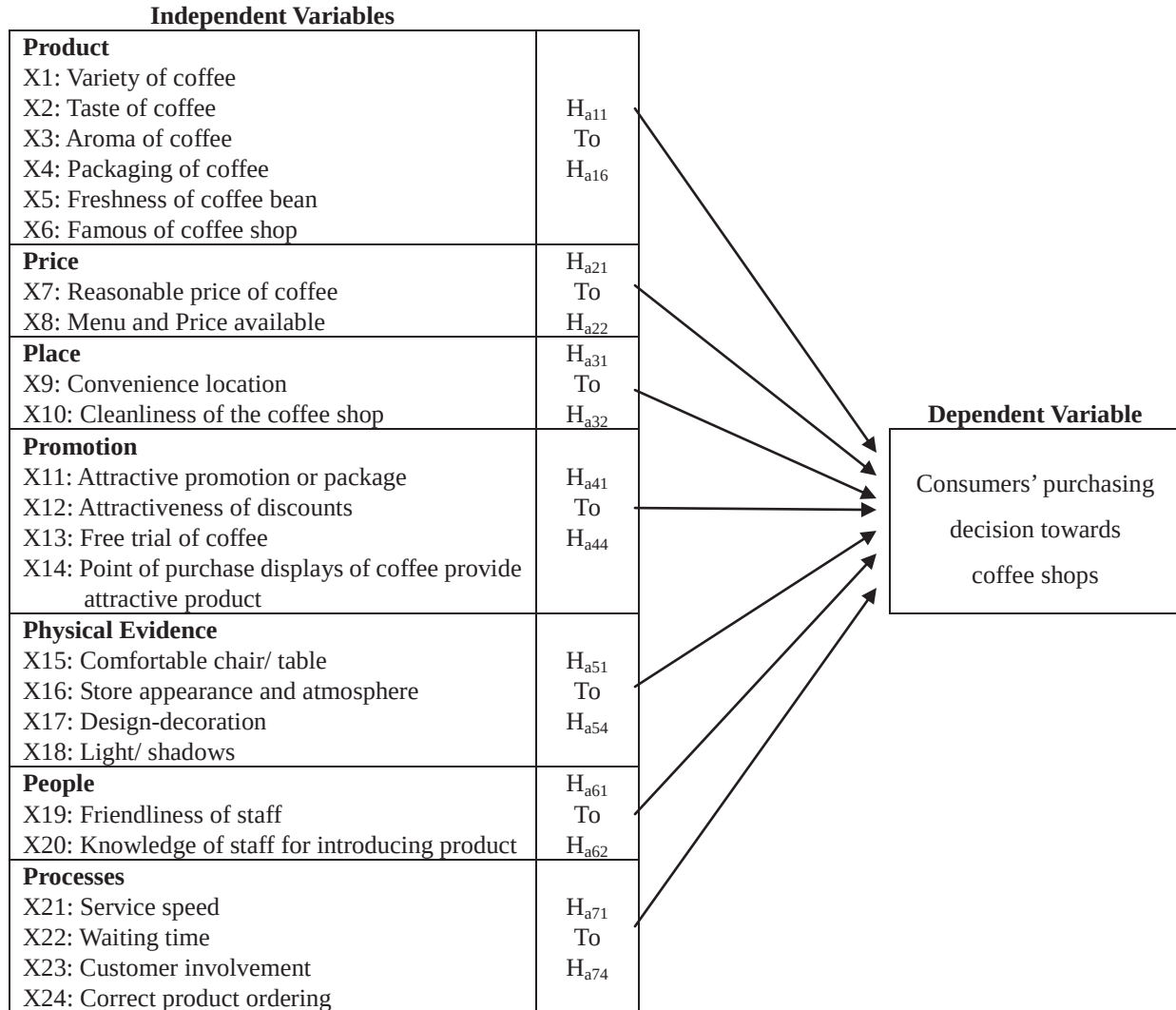


Figure 1: A Research Model

The twenty-four alternative hypotheses are as follows:

H_{a1i} : Product has an effect on consumers' purchasing decision towards coffee shop,
 $i = 1, 2, 3, 4, 5, 6$

H_{a2i} : Price has an effect on consumers' purchasing decision towards coffee shop, $i = 1, 2$

H_{a3i} : Place has an effect on consumers' purchasing decision towards coffee shop, $i = 1, 2$

H_{a4i} : Promotion has an effect on consumers' purchasing decision towards coffee shop,
 $i = 1, 2, 3, 4$

H_{a5i} : Physical Evidence has an effect on consumers' purchasing decision toward coffee shop,
 $i = 1, 2, 3, 4$

H_{a6i} : People has an effect on consumers' purchasing decision towards coffee shop, $i = 1, 2$

H_{a7i} : Processes has an effect on consumers' purchasing decision towards coffee shop,
 $i = 1, 2, 3, 4$

5 METHODOLOGY

This research was a survey research; quota sampling and convenience sampling were used in collecting the sample data. Pre-test was conducted and measures the reliability with Cronbach's Alpha coefficient in order to determine the reliability of the instrument used. The values of Cronbach's Alpha coefficient from 0.6 to 0.7 are considered as the acceptable level for reliability measure. The overall Cronbach's Alpha coefficient of this survey instrument was 0.736, questionnaires were guaranteed that it was the good tool for data collecting. The questionnaires were distributed to respondent who have ever used the service at Starbucks, Black Canyon, and True Coffee on January 2012 among top three coffee shops in Bangkok area. A total of 400 respondents were participated in this research. Multinomial Logistic Regression was employed to obtain the important service marketing mix factors affecting on consumers' purchasing decision towards top three coffee shops.

6 DATA ANALYSIS AND RESULTS

The data were analyzed and summarized with SPSS. Regarding to multinomial logistic regression at the level of significance 0.05, the results are presented as follow.

Table 3: Summary table of parameter estimates for comparing factors between Starbucks and Black Canyon

Factors	Starbucks				Black Canyon		
	B	Sig.	Exp(B)		B	Sig.	Exp(B)
Famous of coffee shop	0.461	0.022*	1.586		-0.461	0.022*	0.630
Reasonable price of coffee	- 0.639	0.004*	0.528		0.639	0.004*	1.895
Design-decoration	- 0.639	0.020*	0.528		0.639	0.020*	1.895
Friendliness of staffs	- 0.423	0.048*	0.655		0.423	0.048*	1.527

Remarks: * has the significance at 0.05 level of significance

Comparing the Exp (B) value of Starbucks and Black Canyon found that for factor "Famous of coffee shop", Starbucks has the greater value of Exp (B) than Black Canyon. It stated that the customer of Starbucks is more likely to be influenced by this factor than the customer of Black Canyon in choosing the coffee shops. Black Canyon has the greater value of Exp (B) than Starbucks for factors "Reasonable price of coffee" "Design-decoration", and "Friendliness of staffs". It stated that the customer of Black Canyon is more likely to be influenced by this factor than the customer of Starbucks in choosing the coffee shops.

Table 4: Summary table of parameter estimates for comparing factors between Starbucks and True Coffee

Factors	Starbucks				True Coffee		
	B	Sig.	Exp(B)		B	Sig.	Exp(B)
Reasonable price of coffee	- 0.584	0.009*	0.557		0.584	0.009*	1.794
Menu and Price available	0.514	0.048*	1.672		- 0.514	0.048*	0.598
Friendliness of staffs	- 0.461	0.033*	0.631		0.461	0.033*	1.586

Remarks: * has the significance at 0.05 level of significance

Comparing the Exp (B) value of Starbucks and True Coffee found that for factor "Menu and Price available", Starbucks has the greater value of Exp (B) than True Coffee. It stated that the customer of Starbucks is more likely to be influenced by this factor than the customer of True Coffee in choosing the coffee shops. While True Coffee has the greater value of Exp (B)

than Starbucks for factors “Reasonable price of coffee” and “Friendliness of staffs”. It stated that the customer of True Coffee is more likely to be influenced by this factor than the customer of Starbucks in choosing the coffee shops.

Table 5: Summary table of parameter estimates for comparing factors between Black Canyon and True Coffee

Factors	Black Canyon				True Coffee		
	B	Sig.	Exp(B)		B	Sig.	Exp(B)
Comfortable chair and table	- 0.575	0.029	0.563		0.575	0.029	1.776

Remarks: * has the significance at 0.05 level of significance

Comparing the Exp (B) value of Black Canyon and True Coffee found that for factor “Comfortable chair and table”, True Coffee has the greater value of Exp (B) than Black Canyon. It stated that the customer of True Coffee is more likely to be influenced by this factor than the customer of Black Canyon in choosing the coffee shops.

7 FINDINGS AND RECOMMENDATIONS

7.1 Findings

By applying Multinomial Logistic Regression, the findings were found that there were four service marketing mix factors affecting on consumers’ purchasing decision towards Starbucks, Black Canyon, and True Coffee as product, price, physical evidence, and people. Based on the value of Exp (B), the strength and weakness of each coffee shop were compared as shown in Table 6.

Table 6: Strength and Weakness of Each Coffee Shop

Service marketing mix factors	Starbucks		Black Canyon		True Coffee	
	Strength	Weakness	Strength	Weakness	Strength	Weakness
1.Product	Famous of coffee shop			Famous of coffee shop		
2.Price	Menu and Price available	Reasonable price of coffee	Reasonable price of coffee		Reasonable price of coffee	Menu and Price available
3.Physical Evidence		Design-Decoration	Design-Decoration	Comfortable chair and table	Comfortable chair and table	
4. People		Friendliness of staffs	Friendliness of staffs		Friendliness of staffs	

7.2 Recommendations

According to the results, coffee shops in the study should focus on the service marketing mix factors in order to increase the customer base and make more market share in this segmentation as follow.

Starbucks should maintain famous of coffee shop and continually improve it. Moreover, Starbucks should show detail about quality of their product, improve their shop in modern style, train their staff for providing good service such as smile, and friendly with customer.

Due to Black Canyon, the price of coffee is quite cheaper than others, has good atmosphere and service mind. Then Black Canyon should maintain these several points, and use it to be the strength point of the brand. Black Canyon should increase advertising for promote their brand, use sale promotion for promote their brand such as buy one get one free, discount, and so on.

True coffees' staffs are friendly with consumers. They will smile and give suggestion about the coffee to consumers. True is suitable for meeting point so consumers are preferred on this point. Moreover, True Coffee has a comfortable chair than other due to True use sofa for seat. And also, the image of True coffee will clear in the eyes of consumer. True Coffee should use this point for promote their brand. True Coffee has not a clearly price of each menu, and also it cannot see easily on board. True Coffee should improve on this point for gaining the attractive of customers.

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CORPORATE SOCIOAL RESPONSIBILITY IN IT INDUSTRY AND SUSTAINABILITY STRATEGY FOR ORGANISATIONAL EXCELLENCE

Suresh B K

ABSTRACT

Current trends show that for retaining competitive advantage, organizations are actively getting involved in corporate social responsibility (CSR). One of the major attentions of corporate social responsibility (CSR) is on developing an information technology (IT) framework which would enhance environmental friendly practices like recycling of paper, proper disposal of information technology instruments and products. The forces behind green IT framework are the push for reducing carbon footprints by international organizations and the realization by major software organizations on the detrimental effect of their operations on the environment. The green IT framework supports the concepts of the use of renewable energy, proper disposal of IT equipments, adopting of green technologies and greening of data centres. The proposed research is focused on the various green initiatives that have been adopted by various software organizations in an effort to reduce carbon footprint and, whether they are actually implementing these initiatives in their organizations. The research will content-analyze the different software organizations and will present a comparative analysis of the state of green information technology framework. Data collected was analyzed using SPSS. The analysis showed that many software organizations have been involved in one of the green information technology initiatives. It is also observed that the organizations involved in more initiatives are considered to be socially responsible which is being reflected in their core strategy and mission statement.

Keywords: Corporate Social Responsibility, Carbon footprints, Cloud Computing, Grid Technology, Green Information Technology Framework, Green Technologies, Virtualization.

1.INTRODUCTION

To be 'socially responsible' is the current buzz word in the business domain and is being implemented by all types of organizations from fast food giants like Burger King to Oil giants like Shell and British Petroleum. The ways in which the company presents itself as a socially responsible corporation are through philanthropic programs, sponsorships, volunteerism, code of ethics, quality programs, health and safety programs and environmental programs (McWilliams and Siegel, 2001; Porter and Kramer, 2002). These are a part of green movement which is also the current trend of today's organization where the emphasis is on protecting the environment (McWilliams and Siegel, 2001).

The green movement has become the part of corporate social responsibility of many organization and they are now targeting to become a socially responsible corporation (Watts and Holmes, 2004). It was generally believed that only those organizations need to incorporate social responsible initiatives that do maximum damage to the environment and these damages are visible and measurable i.e. tangible.

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However, software firms do damage the environment intangibly through their data center as they consume lots of energy for their data servers and information technology equipments to function (EPA, 2007).

Information technology devices consume lots of energy and they have green house emissions. For example, power adaptors wastes significant amounts of energy. Apart from that it is very hazardous and difficult to dispose of information technology equipments as they fill the landforms and emits poisonous gas to the atmosphere. To address such issues, terms like green information technology (IT) or sustainable information technology have become very popular. These terms have become a part of corporate social responsibility and software organizations are actively engaged in implementing sustainable information technology to become a green organization.

Organizations are investing in green IT initiative to help them become a more responsible organization towards the environment. Many software organizations have build a sustainable or green information technology framework in an effort to reduce carbon footprints. Carbon footprint is the *“measure of the amount of greenhouse gases, measured in units of carbon dioxide, produced by human activities”* (Walser, 2010). A carbon footprint can be measured for an individual and also for an organization. The reason for sudden interest by the organizations to reduce the carbon footprint is the ‘green regulation’ which is formulated by international environmental agencies. The ‘green’ regulation like Restriction of Hazardous Substances (RoHS) and Waste Electrical and Electronic Equipment (WEEE) were formulated by European Union in an effort to become more environmental friendly. These regulations address the increasing electronic and electrical waste by restricting the use of toxic substances and flame-retardants by the manufacturers of electrical and electronic equipment to a particular level. This regulation also addresses the recycling programs for the manufacturer’s products.

Leading software organizations like IBM, Cisco, Dell HP and Fujitsu are actively participating in reducing carbon footprints. For example, Dell in the conference on green IT panel that was held in Copenhagen highlighted their steps towards attaining the target of reducing carbon footprints. According to them; “Dell has adopted a three-pronged strategy to maintain carbon neutrality”. They have taken steps to save on energy consumption by “facility upgrades, power management strategies and IT efficiency solutions” and they have committed to reduce the green house gas emissions by 40 percent (GreenITPanel, 2009).

Towards these objectives, the main objective of this research is to see the different types of initiatives the software organizations have taken towards green information technology and which initiatives are most popular. 25 software organizations were targeted across the worlds. Data was collected by content analyzing the corporate social responsibility of each organization. SPSS was used to do the analysis. It was observed that only 9 organizations have implemented more than two initiatives. The rest have either implemented one initiative or none at all. This reflects that most of the organizations have jumped the bandwagon to be socially responsible, yet they have not done anything concrete to target it.

2. LITERATURE REVIEW

The concept of corporate social responsibility is defined as "the continuing commitment by

business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" (Watts and Holme, 2000). The concerns for the environment due to waste emissions in the form of carbon monoxide that is responsible for global warming, land and water pollution due to toxic waste emission and high consumption of energy that is depleting our natural resources have made the companies more aware of the environment. The environmental protection has become the key feature of corporate social responsibility where the emphasis is to protect the natural resources.

Study has shown that the socially responsible corporate have an affect in the market share irrespective of age, size and type of industry (Crystal and Scherer, 1993; Sharma and Vredenburg, (1998)). The evidence of CSR is reflected in corporate codes of conduct, reporting, clean technology agreements and social investment initiatives (UNEP, 1998, Elkington 2001). Organizations in different sector are building their brand image of corporate social responsibility by promoting voluntary initiatives (VI) in their corporate agenda (Utting, 2000). Software firms through their data centre have high energy consumption (EPA, 2007). Apart from that, their products like computer, printers, scanners, and compact discs etc consume lots of electricity and are difficult to dispose. In United States alone, 2 in 10 consumers disposed desktop computer in 2003 (Greenerchoice, 2008). This when calculated globally amounts to a huge disposal to the landfills and these wastes are more hazardous to the environment and health. Gartner has predicted that the organization expenditure on IT budgets on energy consumption would increase two to three times within the next five years by 2011(Pillar Data, 2010). To address these issues, the software firms are involved in environmental friendly practices and developing a green information technology framework.

Green information technology (IT) is a term that is used when the organization is involved in reduced energy consumption by their products (hardware and software) and reduced software and hardware wastage in their system. Using green information technology infrastructure will help the organization to reduce the IT complexity which in turn will lower the costs, improve the quality of service and performance. It will help the organization to record and report green savings. The green infrastructure will help the organizations to prepare for future legislation and regulation that will benefit the organization, employees and the environment. It will also enable to promote recyclability and decrease hazardous wastes that affect the climate and natural resources. It is also one of the ways for enterprises to spend less on their IT budgets related to energy, paper and equipment waste.

The organizations are actively engaged in implementing green initiatives to become corporate sustainable. To get the brand image of being social organizations, they are engaging in activities that make them a green organization. For example, IBM has strategied itself as providing technologies and services for "smarter planet". These organizations are designing their IT framework based on the different Green initiatives and hence their framework represents Green IT. The different initiatives that will help the software organizations to move towards green IT framework are:

- ✓ Use of renewable energy or alternative energy to address its energy consumption
- ✓ Proper disposal of IT equipment, cartridges, batteries which are proving to be hazardous to the environment
- ✓ Maintaining green Data Centres where, energy consumption is reduced through various initiatives.

- ✓ Use of green technologies like technologies that support work from home, reduction in the use of paper etc.
- ✓ Reducing the use of paper i.e. encouraging paperless environment

These initiatives are an effort by the organizations to reduce carbon footprints. The carbon footprints can be reduced designing energy efficient components like power adapters, processors, cooling components and specialized software. For example power adapters wastes significant amounts of energy. Currently, power adapters with a rating of 70% efficiency waste 30 Watts of electricity which is a huge amount. Hence, the manufacturers are sending higher efficiency adapters with 80% to 90% efficiency ratings. This helps to reduce wastage of electricity. The cost incurred in designing energy efficient networking components is high which has resulted in slow improvements.

The environmental agency, Environmental Protection Agency (EPA) has made it mandatory for all organizations to use Energy Star equipments as the IT devices consume lots of energy and emit greenhouse gas that increases the carbon footprints. Using Energy Star certified equipments will help to reduce energy consumption and green house gas emission that will help to reduce global warming. In 2006 alone, there was a \$14 billion saving in energy costs because of this standard. From lighting alone, the bulbs with energy star logo helps to energy costs by 75%, maintenance costs 2 to 5 times longer than fluorescent lighting, and the reduces cooling costs.

Apart from the push through regulations from the government agencies, there are other ways in which an organization can reduce carbon footprints. Some organizations are actively participating in reforestation where they are actively planting trees in areas where the proportions of trees are low. Some organizations are encouraging employee to use car pooling, energy efficient vehicles and have launched car-sharing programs (Ellision, 2010). Organizations are enhancing their insulation in ceiling, walls, floors and window to increase the insulation that will indirectly help to reduce the energy consumption of cooling systems.

The first step of this research was to find out the various green initiatives that have been taken up across various organizations in general. This was done through literature review and then the green initiatives were categorized and labelled so that the main initiatives can be isolated. Over the preliminary examination, we have been able to categorize and operationalize green initiatives into four groups: green data centres, use of green technologies, recycling efforts and use of renewable energy in their buildings.

Green technologies are those technologies that help to conserve natural environment and resources and help to reduce the negative impact on humans and other living organisms. Green technology is also known as environmental technology and through these technologies sustainable development is achieved. These technologies help us to do recycling, water purification, waste management, renewable energy and sewage treatment. Some technologies help to reduce the consumption of energy while others help to reduce the amount of waste in terms of paper, toxic emissions produced by human activities.

Telecommuting; is known as telework, work from home, e-commuting and e-work. The basic concept is that the employees are given flexibility to work from home with the help of communication technologies. Tools like virtual private network (VPN), video conferencing, conference calling, and voice over IP (VOIP) enable the long distance employees to work from home. This helps to reduce on time spent in commuting from home to office and vice

versa, thus improving their efficiency.

Literature review revealed organizations are implementing green IT infrastructure and are highlighting it in the corporate social responsibility report. It is seen as a strategy by the corporate to gain competitive advantage. Hence the initiatives are implemented in their core strategy and are reflected in their vision and mission statements. These green initiatives vary from one software company to another and many analysts feel that these organizations are window dressing themselves as socially responsible organization to target the growing environmental friendly consumer base.

3. RESEARCH METHODOLOGY

To gain a fresh perspective of where the software organizations stand in implementing the green initiatives as is reflected in their advertisements and reports, this research aims to present a comparative picture of the status of green IT initiatives of various organizations. The purpose of this research is twofold. The main objective of this research is to see the different types of initiatives the software firms have taken towards green information technology. The second objective is to see whether these initiatives can make them a socially responsible organization. Towards these objectives in mind, we formulated 4 hypotheses.

- ✓ H1: Organizations are considered to be more environmental friendly when they use one or more forms of renewable energy. This means that the organizations can use either solar energy, wind energy, or hydroelectric energy to reduce energy consumption
- ✓ H2: Organizations are considered to be more environmental friendly when they take steps for the proper disposal of information technology equipments.
- ✓ H3: Organizations are considered more environmental friendly when they use one or more green technologies. This means that the employees are encouraged to telecommute, use mobile technology, or and maintain paperless office.
- ✓ H4: Organizations are considered more environmental friendly when they use one or more technology to reduce the energy consumption in their data centres. The focus here is on technologies like virtualization, grid computing, and energy efficient cooling systems.

Towards these objectives, data was collected from the content analysis of corporate social responsibility report of various software organizations. Sample was selected based on the list of software organizations that was generated by the magazine Software World (Softwareworld, 2010) and Yahoo finance. Only those companies were selected which had a high revenue generation for the year 2010 and had a large global presence. It was preferred that software companies of different countries be taken. Some others Intel, Oracle, SAP, InfoSys, Wipro, Satyam, Apple, Accenture, CapGemini, and Adobe were added as they also had huge global presence and were a brand in itself.

The sample size for this research is 25 software organizations. Since we have selected only those organizations that are global and have high revenue, the size is restricted small. Many would argue that the sample size is small but the logic is that the chosen software companies are a trendsetter and hence anything they are doing will be done by smaller organizations.

4. DATA ANALYSIS

Data collected was analyzed using SPSS software where both descriptive and inferential statistics was done. Cronbach alpha was calculated using this software to test the reliability of the instrument. The Cronbach alpha was calculated as 0.4725 which implied that the instrument measured what it is intended to measure which in our case is to see whether the organizations are positively involved in saving the environment. However, the cronbach alpha is not very high which can be contributed to our low sample size.

4.1 Descriptive statistics

Descriptive statistics in SPSS was done to analyze how many organizations were positively involved in the

four initiatives that are highlighted in this research. It was observed that:

- 52 percent of the sample had no clear idea about the usage of renewable energy to meet their energy consumption need. 16 percent of the sample uses more than two sources which is predominately solar energy and wind energy. Solar energy is seen to be the most used renewable energy sources in the sample. Only one organization, Yahoo is using a combination of solar and hydroelectric energy for their energy consumption.
- 64 percent of the organizations have not taken this initiative. Only 36 percent of the sample was involved in this initiative which meant that they had defined process that explains the different ways to dispose of information technology equipments like printers, personal computers, laptops etc. Only 24 percent of the respondents are involved in encouraging their employee to use one or more green technologies as a CSR initiative. However, 64 percent of the respondents in the sample are not using any of the green technologies as a CSR initiative. It should be kept in mind that these technologies are being used in organizations but more as tools for effective performance rather than a tool for greening their environment.
- Only 28 percent of the sample is actually using one or more of these technologies to reduce energy consumption in their data centres. 60 percent of the sample is not using any of technologies to reduce the energy consumption in their data centre. It is observed that only a handful of organizations are doing virtualization only as an attempt to reduce energy consumption. Few organizations like Sun Microsystems and HP have done consolidations but it has still to become the most focus of all organizations.

4.2 Regression analysis

Regression analysis was done with renewable energy, disposal of information technology equipments, green technology and green data centre as independent variable and socially responsible organization as dependent organization. The variable, socially responsible organization was measured through their degree of involvement in green initiative. For example, if the organization was involved in all the 4 initiatives, it was marked as 1. If the organization was involved in no initiatives, it was given 5. The rest of the table was populated based on the number of initiatives the organizations are implementing. Regression analysis was done to give an idea that when an organization is faced with 4 initiatives mentioned above, which when implemented will ensure that they are actually doing something concrete to save the environment and hence can portray themselves as socially responsible organization. The R-value of the model that was regressed was 0.98 which means that 98 percent of the data was explained by the model

The F-value was 212.63 which are highly significant which implies that we accept that all the initiatives are required to portray it as a socially responsible organization. The more emphasis is on disposal of IT equipment as the co-efficient is the highest, the more socially responsible is the organizations. Based on the analysis, we observed that software organizations are positively involved in reducing the carbon footprints and are highlighted in detail in their corporate social responsibility report. To test the hypothesis, we conducted the t-test and the results are shown in table.

Hypothes	t-value	Status	Significance
H1	16.360	Accept	Organizations are environmental friendly when they use at least one option of renewable energy.
H2	6.336	Accept	Organizations are environmental friendly when they have proper disposal of IT Equipment
H3	8.744	Accept	Organizations are environmental friendly when they use at least one option of green technologies
H4	6.545	Accept	Organizations environmental friendly when they are using at least one technology to green data centres.

Hypothesis testing and t-values

It was observed that out of 25 organizations, only 9 organizations have implemented more than 2 initiatives in their organizations. The rest of the organizations have just started participating by advertising itself first. Most of them are advertising by following there competitors but in reality they have not implemented the green IT framework entirely. Considering that they have worldwide presence, they are not contributing enough to the environment through these initiatives and hence they are being very forward in assuming that they are green. Adding to this is that each software organizations are doing the green initiatives under different names. There is no uniformity in the initiatives across software organizations which will lead to problems in interpreting and analyzing the data. Also, that some organizations are doing one initiative which has been exaggerated in the report to attract the attention of environmental agencies and the consumers and satisfy the government body.

5. CONCLUSION

The purpose of this research is to present the different initiatives towards green information technology framework that has been adopted by software organizations. The main aim was to formalize and categorize the various initiatives under the four groups, use of renewable energy, greening of data centres, proper disposal of IT equipments and use of green technologies. It was observed that an organization is socially responsible if it is actively participating in all the four initiatives instead of just participating in one or two initiatives. One of the potential benefits of this study is that this will help other software companies which are willing to adopt eco-friendly practices to build a green information technology infrastructure framework. It also contributes to the literature of green information technology by presenting a framework to categorize various green initiatives. It also presents content analysis of different software organizations and hence provides a comparative view of the status of green IT framework. This research can be used as a background for future research of reducing carbon emissions through green information technology framework.

One of the limitations for this research is that this is not an empirical study. Since research in green information technology is a budding field it is difficult to quantify various variables of

the constructs like data centres, recycling etc. Also, the instrument used to measure the different green initiative was not fine-tuned but was rather broad. Most of the items that were used to measure each initiative overlapped. Hence, we had a low Cronbach alpha. This factor was further compounded by the fact that many organizations had no clarity about what they are actually doing to turn themselves green. Hence, the judgments of the researchers were used here and hence this dissertation has the probability of having the researcher bias. However, this can be ruled out by showing the data to different experts to rule out this possibility.

To conclude, it is seen that information technology also contributes towards environmental problem and hence it is very important that organizations develop framework and policies to address the problems. It is very important that these organizations focus on sustainable policies and initiatives as the move towards sustainable policies are new way of doing business by organizations and they do so by conserving resources for future use.

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BUSINESS BEYOND BOUNDARIES (B3B): E- COMMERCE INNOVATIONS & CHALLENGES

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ABSTRACT

The Internet has dramatically changed the way companies carry out trade and commerce. In the present volatile market one of the most distinctive competitive advantages companies can gain and sustain is the rise of computer technology and the Internet. The rise of electronic commerce has led to abundant online markets where buyers and sellers share a relationship and ironically they have never met. This is the condition of post-modern civilization which is supposed to have impacts on the customers' behavior and perception. And, if so the companies must accustom to this trends. All this has led to companies adapting a more aggressive approach towards creating sustainable business with changing dynamics. Consequently, the purpose of the study is to expand an understanding that explains how and in what ways a company can craft sustainable business strategy in this ever changing market. In order to visualize the process of Business beyond Boundaries we conducted our study, we have researched comprehensively on the Internet for resources. We chose the Internet as primary resource. Since it is technology related, the Internet will offer the most up to date data available. Printed publications may not be able to adapt to changes as fast and efficient as electronic publications. We analyzed various e-commerce related web sites along with some companies. Some of the e-commerce web sites that we took as point of references are Web marketing today, Internet news, Commvault updates, Ecommerce-journals, E-Commerce Times, E-retail, and e-Marketer. The statistical research firms that we researched are market Research, Forrester Research, internet news and Jupiter Communication. These firms provided valuable statistical data that shows the rise of ecommerce. In conducting our research study, we accomplished the following steps:

- We searched extensively on the Internet for sites that are e-commerce related. Upon visiting the sites, we evaluated each sites for the contents, meticulousness,
- and objectiveness. There are plainly hundreds of sites that are dedicated to e-commerce industry. However, we carefully examined most of them which are relevant for this report.
- We have also researched many firms that conduct statistical researches. Such as Forrester Research, web marketing today and Jupiter Communication. These firms are known for their preciseness, non-objectiveness, and thoroughness. The statistical data we collected from these firms will support our findings and recommendation.

A comprehensive concept has also been developed on the basis of experts interviews, case studies and market analysis pertaining to post-modernism, leveraging customer information, challenges of today's market dynamics etc. The hypothesis indicates that the prerequisite for a relationship to exist is that the customers perceive that there is a trust and commitment of quality in the company's offering.

KEYWORDS

Business beyond Boundaries, e-consumerism, post-modernism, Market dynamics, Ecommerce resolution, brick & mortar, trade and commerce.

1. ECOMMERCE

Electronic commerce, e-commerce or ecommerce primarily consists of exchange of goods and services such as distributing, buying, selling, marketing, and servicing of products or services over electronic systems such as the Internet and other computer networks. The information technology industry might see it as an electronic business application designed at commercial dealings. It entails electronic funds transfer, online marketing, online transaction processing, electronic data interchange, supply chain management, e-marketing, automated inventory management systems, and automated data-collection systems. It normally uses electronic communications technology such as the Internet, extranets, e-mail, EBooks, databases, and mobile phones. When a company integrates an e-commerce resolution, the business will reduce considerable amount of operation cost simultaneously increasing its profit margins. The e-commerce resolution also allows company to eliminate needless paperwork. The entire paperwork and data can be transformed into an electronic format. Consequently, it will eliminate valuable shelf space and data can be searched and accessed in matter of few seconds.

E-commerce will also automate the entire marketing process. In the midst of an e-commerce resolution, the business will be operating 24/7 hours at any point of time irrespective of regional holidays or any climactic conditions which would sometimes make companies to shut down business transactions. People from anywhere in the world with Internet connectivity will be able to visit the site at any point of time removing the barrier of restricted to the "normal" business operating hours.

A "brick & mortar" business is normally limited to serving the customers in its local geographical location. With an e-commerce resolution, that business will not be limited a geographical restriction, rather it opens itself to the global on-line market. Essentially, the business' market exposure will be greatly increased. Customers can have plenty of offerings at their finger tips and they may chose conveniently any of the products they may wish to purchase, fill out the customer information and the product will be shipped and received in a matter of few days. The administration department interference is going to reduce considerably because it does not have to bother about any paperwork since the customer had done it already. Thus, the efficiency of business deal will be to a great extent improved.

It is appropriate that the definition of ecommerce as "ecommerce primarily consists of exchange of goods and services electronically" must be expanded towards creating sustainable customer relationship management. The entry has been traced from where it begins with the definition of e-commerce from a free encyclopedia, self-described as "the largest encyclopedia in history, in terms of both breadth and depth," entirely created by the voluntary contributions of the Internet community—for that is a very good indication of the revolutionary basis upon which e-commerce has thrived. The entry on e-commerce in the previous edition of this work also began with a quote, but one in which it was seen more as a promise than a reality: "No single force embodies our electronic transformation more than the evolving medium known as the Internet. Internet technology is having a profound effect on the global trade in services".

2. E-MARKET ANALYSIS

In two decades, the Web has completely changed many industries' sector has experienced as much of an impact as e-commerce. Consumers today habitually glance through for the best deals online and procure products using their portable devices. At any given time there are millions of people online and each of them is a potential customer for a company providing online sales. Due to rapid increase in technology, most of the retail stores are coming up with the websites to sell their products online to compete with the competition. Since there are different types of consumers, companies should understand what are the needs and wants of consumer so that they can serve them better. The importance of analyzing and identifying factors that influence the consumer when he/she decides to purchase on the internet is vital. Since online shopping is a new concept, consumers expect something more than the traditional way of shopping.

An e-commerce resolution for a business is the amalgamation of all aspects of the business process into an electronic format. Many well-established businesses have been selling on-line for years. According to IBM, 70 percent of customers have their first experience with a product or service on the Web, while 64 percent make an initial buy due to the online experience. In fact, of some two billion users on the Internet, more than 600 million of them have Face-book pages. For example, Dell Computers Corp. has been selling computers directly to end-users for years. Currently, Dell is selling excessive of more than 1 million dollars worth of computers everyday on the World Wide Web (WWW).

While facebook referred more retail shoppers than any other social media source, it is still accounted for less than one percent of the total web traffic. Shoppers who purchased through Twitter had the highest average order value, outspending consumers who were referred by Google. Google still refers the majority of the online shoppers to your website; however shoppers are also spending much time on facebook and twitter. Experiment with social media in the promotion of your brand. Traffic to retail sites from facebook increased 92% in 2011 over the year 2010 (*In news by Cyndi Williams, September 26th, 2011*). The latest consumer-to-consumer (C2C) Internet mart roar at eBay, Yahoo, Amazon, olx, flipkart, Jabong and new sites have added new face to the science of ecommerce and e-business challenges. In just a few years, eBay has emerged as a dominant force in e-commerce. eBay has become a global force in electronic commerce. Founded in September 1995, eBay has become the world's major online marketplace. The eBay population includes more than a hundred million registered members from around the globe. Perhaps People spend more time on eBay than any other online site, making it the most popular shopping destination on the Internet. As stated in their Annual Report, eBay's mission is to provide a global trading platform where practically anyone can trade practically anything. On an average day, there are millions of items listed on eBay.

According to research by VeriSign, e-commerce was born on August 11, 1994, when a CD by Sting was sold by Net Market. To celebrate, the Internet infrastructure and technology company hosted a panel discussion with Net honchos to reminisce and, more important, to imagine the next 10 years of shopping online. Today it is indeed a remarkable journey the web has taken so far. Web is becoming an important part of every one of us A survey conducted showed that roughly 25 % of all Adult are relaying to Internet before they decide what to buy and where to buy it. These adults uses web to research products and services. Web is closely becoming an indispensable part of teenagers as well. A survey claimed that 80% of online teens (in the age group of 12-17) visit online stores to quench their shopping

needs. Most people might believe it natural for the present affiliate of teens to Internet for all their needs including shopping and hopping. However, Teens are restless and would require all the decision parameters (like price, quick checkout, sorting by preference etc) to be within the reach of their decision making process.

TRENDS IN ONLINE SHOPPING (www.businessreviews.in)

- ❖ 71% Indians trust recommendations from family while making an online purchase decision, followed by recommendations from friends at 64% and online products reviews 29%
- ❖ Half the Indian consumers use social media sites to help them make online purchase decisions
- ❖ Online reviews and opinions are most important for Indians consumer electronics 57%, software 50%, and a car 47%
- ❖ More than 4 out of 10 Indian consumers are more likely to share (tweet/post review) a negative product or service experience online than they were to share a positive experience.

The application of an e-commerce generates a new revenue stream, expands the market exposure, and decreases the operation cost. Many Fortune 500 companies, such as Dell Computer Corp., have found that their business is never going to be the same as they adapted e-commerce into their business operation. Many well-known "brick & mortar" businesses are starting to establish their presence on the web.

3. E-BUSINESS CHALLENGES

3.1 Trust Building:

Much of the earlier research into e-business has focused on the role of trust. Trust is an important factor in every marketplace, but even more so in electronic commerce. The impersonal and anonymous nature of electronic commerce creates a fertile environment for the manipulation of transactions and potential fraud. Almost all online auction sites address this issue through the use of information exchange about the background and experience of buyers and sellers. The most notable of these systems is EBay's Feedback Forum. Online feedback mechanisms allow buyers and sellers to report their satisfaction with each transaction in a public forum. These mechanisms can serve to build trust among the participants in electronic commerce.

3.2. Quality of service:

The fundamental problem is the information asymmetry between buyers and seller. When bidders view a product at an auction site, they do not have the opportunity to inspect the product and directly observe the quality. These unequal accesses to information pose as a major challenge which can lead to frauds in e- market.

3.2 Minimizing Security fear factor:

Security is as much of an issue as ever while consumers' fears about providing credit card information online, or personal information is a top barrier to the growth of e-commerce, in order to avoid this security fear factor companies can create sound confidentiality rules and regulations. While the number of e-shoppers continues to grow, there is still widespread concern in the internet population about the safety of financial and personal data online. 58% of internet users say that they have felt frustrated, confused or overwhelmed during online shopping.

3.4 Creating Niche Presence:

There are approximately 70 million people worldwide that have access to the World Wide Web (WWW). No matter what industry or business one is in, one cannot ignore 70 million people. To be a distinguishing part of this on-line community, one would need to create niche on the WWW. Because if one does not do it, one's competitor definitely will. What if one's widget is great, but people would really love it if they could see it in action? The album is great but with no airplay, nobody knows that it sounds great? A picture is worth a thousand words, but one does not have the space for a thousand words? The WWW allows one to add sound, pictures and short movie *files* to one's company's info if that will serve one's potential customers. No brochure will do that.

3.5 Enhancing Public Interest:

Web page information can be accessed by anybody from anywhere who can access the internet and hears about one's site is a potential visitor to one's Web site and a potential customer for one's information there. Therefore, creating public interest is challenging and paramount in e-commerce. If one could keep one's customer informed of every reason why they should do business with them, doesn't one think one could do more business? One can on the WWW.

3.6 Building Network:

A lot of what passes for business is simply nothing more than making connections with other people. Every smart businessperson knows, it is not what one knows, it is whom one knows. Passing out one's business card is part of every good meeting and every businessperson can tell more than one story how a chance meeting turned into the big deal. Well, what if one could pass out the business card to thousands, maybe millions of potential clients and partners, saying this is what I do and if you are ever in need of my services, this is how you can reach me. One can, 24 hours a day, inexpensively and simply, on the WWW. Therefore building network is essential in e-business.

3.7 Providing Effective Business Information:

Providing customers the most sought after basic business information is crucial: What is one's business hours? What does one do? How can someone contact the business? What method of payment does one take? Where is the business located at? Now think of ads where one can have instant communication. What is today's special? Today's interest rate? Next week's parking lot sale information?

3.8 Venturing into International Market:

The e-commerce resolution will allow a dialogue with international markets as easily as with the company across the street. Therefore, one should decide how one wants to handle the international business that will come one's way, because one's postings are certain to bring international opportunities to one's way, whether it is part of one's plan or not. Another added benefit; if one's company has offices overseas, they can access the home offices information for the price of a local phone call.

3.9 Maximizing Media exposure:

Being visible is another important factor in ever growing e-market. The media is the most energetic profession today, since their main product is information and they can get it more quickly, cheaply and easily on-line. Every kind of business needs the exposure that the media can bring. On-line press kits are becoming more and more common, since they work with the

digital environment of more and more pressrooms. Digital images can be put in place without the stripping and shooting of the old pressrooms and digital text can be edited and outputted on tight deadlines. All these can be made available on an e-commerce solution.

3.10 Focusing Demographic Market

The demographic of the WWW user is probably the highest and most influential mass-market demographic available. Usually they are college-educated or being college educated, making a high salary or soon to make a high salary. It is no wonder that the best website or most viewed site is the also common choice of the Internet community. It has no problem getting any brand and other high-end marketer's advertising at its door step. Even with the addition of the commercial on-line community, the demographic will remain high for many years to come.

3.11 Targeting Specialized Market:

Selecting and targeting a specific group of viewers is becoming essential. If one's market is education, consider that most universities already offer Internet accesses to their students and most youngsters are on the Internet. Books, athletic shoes, study courses, youth fashion and anything else that want to reach these overlapping markets needs to be on the WWW. Even with the coming of the commercial on-line services and their somewhat older populations there will be nothing but growth in the percentage of the under 25 market that will be on-line. One may think that the Internet is not a good place to be. Well, think again. The Internet isn't just for computer science students anymore. With the millions users of the WWW, even the most narrowly defined interest group will be represented in large numbers. Since the Web has several very good search programs, one's interest group will be able to find one's company, or one's competitors. This is the power of internet to serve the world with an e-commerce solution.

3.12 Updating Information:

Keeping information up to date is very important. Electronic publishing changes with one's needs. No paper, no ink, no printer's bill. One can even attach one's web page to a database which customizes the page's output to a database one can change as many times in a day as one needs. No printed piece can match that flexibility. Sometimes, information changes before it gets off the press. If one has ever remembered too late or too early to call the opposite coast, one knows the hassle. Not all businesses are on the same schedule. Business is worldwide but one's office hours aren't. However, Web pages serve all 24/7. The companies must customize information to match needs and collect important information that will put one ahead of the competition, even before they get into the office.

OBJECTIVES OF THE STUDY

- ✓ To study the challenges involved in e-commerce market.
- ✓ To study the factors influencing online shoppers and consumers
- ✓ To study the customer level of satisfaction with regards to online shopping
- ✓ To examine whether customers attitude towards online shopping.

SCOPE OF THE STUDY

At any given time there are millions of people online and each of them is a potential customer for a company providing online sales. Due to rapid increase in technology, most of the retail stores are coming up with the websites to sell their products online to compete with the competition. Since there are different types of consumers, companies should understand what

are the needs and wants of consumer so that they can serve them better. The importance of analyzing and identifying factors that influence the consumer when he/she decides to purchase on the internet is vital. Since online shopping is a new concept, consumers expect something more than the traditional way of shopping. That is why it is crucial for the online retailers to know what influences the online consumer.

Analyzing consumer behavior is not a new phenomenon. The renowned marketing expert Philip Kotler has published several works on the topic of consumer behavior theories. These theories have been used for many years not only to understand the consumer, but also to create a marketing strategy that will attract the consumer efficiently. Hence identifying and understanding the consumer needs decide the direction of companies marketing strategies. These theories can be applied to identify the online consumer and create certain consumer segments. However, some distinctions must be still be made when considering traditional consumer behavior and online consumer. Analyzing the process of consumer online shopping, companies should tailor made their services for an increased satisfaction level of consumers.

RESEARCH METHODOLOGY

Data for this study was collected by means of a survey and by means of web based data collection. The sample size was 200. The Questionnaire was used mainly to test the model proposed for Attitude towards online shopping. Likert five points scale ranging from strongly agree to strongly disagree was used as a basis of questions. Around eleven different factors were taken by studying the existing models of consumer attitudes that play an important role in online purchase.

SAMPLE DESIGN

Web based survey as well as field survey was conducted. The factors intended to examine can be applied to and investigated at any population that uses internet and buys products online. Since there are time and resources restraints, a specific population had to be identified in order to generalize and create relevant segments. It was decided that the sample size should contain over 200 respondents. The populations for this research are professionals & students. The city was chosen on a convenience basis. Convenience sampling involves using samples that are the easiest to obtain and is continued until the sampling size that is need is reached. It is assumed that there will be little variation in the population making it more approved to generalize the response rates.

ANALYSIS & INTERPRETATION

Q1: Through Online Shopping, I get easy access to the information about products and services.

Parameter	Respondents
Strongly agree	39
Agree	131
Strongly disagree	0
Disagree	22
Neutral	8
Total	200

Interpretation: From the above graph we can say that out of 200, most (131) of the respondents agree and some strongly agree (39) that they get easy access to the information about the products and services they want online.

Q2: It is faster and convenient to purchase goods or services online than traditional method.

Parameter	Respondents
Strongly agree	33
Agree	92
Strongly disagree	4
Disagree	62
Neutral	10
Total	200

Interpretation: Out of 200 respondents 91 agreed and 33 strongly agreed that online shopping easier and convenient way than traditional way of shopping and 62 respondents disagreed with the statement as believe in traditional way of shopping. As most of the respondents are students and young professionals the result came favor towards online shopping because they are the people uses internet more than any other category.

Q3: We get better deals during online shopping.

Parameter	Respondents
Strongly agree	9
Agree	121
Strongly disagree	3
Disagree	42
Neutral	15
Total	200

Interpretation: From the above graph we can tell that most (121) of the respondents agreed that they get better deals during online shopping and some portion (42) of respondents disagreed with the statement. It tells that most of the respondents believe that they get better deals when compare to traditional way of shopping.

Q4: We can choose products from a wide variety.

Parameter	Respondents
Strongly agree	15
Agree	119
Strongly disagree	2
Disagree	54
Neutral	10
Total	200

Interpretation: Out of 200 respondents 119 respondents told they can view a wide variety of products through online shopping and 54 respondents disagreed with the statement saying that they don't get access to variety of products online.

Q5: We do get good after sales service.

Parameter	Respondents
Strongly agree	4
Agree	90
Strongly disagree	4
Disagree	78
Neutral	24
Total	200

Interpretation: The graph suggests us that almost 45% (90) of the respondents believe that they get good after sale service when they do online shopping. Similarly, almost 40% (78) of the respondents don't believe in after sale service with online shopping. So it is almost 50% positive and 50% negative response to the statement.

Q6: We may doubt that the credit card number may be stolen if used.

Parameter	Respondents
Strongly agree	28
Agree	125
Strongly disagree	10
Disagree	21
Neutral	16
Total	200

Interpretation: Majority (125) of the respondents said that they may lose credit card details if they use it for online shopping. They said this statement as the internet hackers are increasing day by day and users cannot differentiate between original and false bank website pages.

Q7: It is difficult to return defective items if purchased through online.

Parameter	Respondents
Strongly agree	26
Agree	144
Strongly disagree	2
Disagree	10
Neutral	18
Total	200

Interpretation: The table suggests us that many (144) of the respondents believe that they can't give back defective items if purchased through online. They said it as they don't find any physical stores available for them to go and give back.

Q8: The information available online is authentic and reliable.

Parameter	Respondents
Strongly agree	10
Agree	140
Strongly disagree	4
Disagree	26
Neutral	20
Total	200

Interpretation: Most (140) of the respondents believe that the information available online is reliable.

Q9: If you choose online shopping, what do you look to shop for?

Parameter	Respondents
Books	46
Clothing & Jewelry	80
Movie Tickets	131
Digital camera	22
Shoes	75
Toys	10
Bikes/Cars	33
computer accessories	66
Mobile & accessories	106
Fashion accessories	92

Interpretation: Most of the customers look for Movie tickets (131), mobiles & accessories (106), fashion accessories (92) and clothing (80) when they go for online shopping.

FINDINGS AND RESULTS

- ✓ Customers believe that they get easy access to the products and services they want through online shopping and they believe that it is faster and convenient than the traditional way of shopping. As most of the respondents are students and employees, we have got positive response towards online shopping though it has not risen to that extent because they use much of internet and they get easily attracted towards the offerings which online shoppers provide.
- ✓ Customers believe that they get best deals when they shop online and they told that they find variety of brands at one place.
- ✓ Regarding after sales service, half of the customers are favorable and another half are unfavorable to it as some of the customer had a bad experience with it.
- ✓ When it comes to payment option with online shopping, most of the customers are unhappy as they faced some issues regarding over payment of cash when using credit/debit card and also faced issues with hacking of credit/debit card details.
- ✓ Customer are facing problems in giving back the defective items through online shopping though online shoppers are telling that they are providing good after sale service.
- ✓ Online shoppers are giving description beside any product. But customers are feeling that it is not sufficient for them to understand and make a decision on purchase.
- ✓ As most of the customers rely on internet for information about anything, they believe in that information as it has been trusted source for many of the customers.
- ✓ Only some of the customers look for car/bike information online as they believe in going directly to showroom when they plan to purchase any vehicle.
- ✓ Most of the customers look for fashion accessories, clothing, tickets and mobile accessories when they go for online shopping.

FEW EXPERTS TIP FOR SAFE ONLINE SHOPPING www.ecommerceforum.in

- ❖ Bookmark reliable online shopping sites. Relying on search engine results can lead you to malicious sites.
- ❖ Ignore suspicious offers sent via E-mail. Spam offering huge discounts and bargains may contain malicious links or file attachments that lead to system infection.
- ❖ Verify unbelievable offers. Spam and online ads that offer mind boggling promos and discounts can lead to web threats.

- ❖ Double check payment sites URL's. Phishers trick users into giving out personal information via spoofed pages.
- ❖ Use reliable security software. Avoid visiting compromised sites with the help of security software that blocks access to fake online shopping sites.

SUGGESTIONS AND RECOMMENDATIONS

1. Online shoppers should concentrate on after sale service to the customers as many customers are facing problems with it.
2. They also should make payment option very secure, so that customers will have some faith to shop online.
3. The retailers must make sure that their website is out of malwares and virus attacks.
4. The online advertisement made for products in other website must have direct link for purchasing site.
5. Retailers have to give reasonable discounts to their customers so that they visit regularly to their website for shopping.
6. To attract customers, the competing online players are adopting all means to provide products and services at the lowest prices. This has resulted in making the consumers choice-spoilt, who in turn surf various websites to spot the lowest price for the products, although the number of transactions is increasing, the value of the product sold is continuously falling, owing to high competition and lesser margins.
7. It might take few minutes to search for products & services and payment of money, but the delivery of the product may take unreasonable time. So e-retailers must concentrate on fast delivery of goods, so that customers don't face any problem in shopping and receiving the product.
8. e- tailing market is faced by seasonal fluctuations .As told by an industry player," August to February is the peak season for sale, while March to July is the dry seasons for sale ".During the peak season, occasions that drive the sales are Diwali, Rakhi, Valentine's day, New year, Christmas, Mother's day ,Friendship Day etc are. On these occasions' younger generations prefers buying and gifts online.

CONCLUSION

The research shows that ecommerce has very bright future. Perception towards online shopping is getting better. With the use of internet, consumer can shop anywhere, anything and anytime with easy and safe payment options. Consumers can do comparison shopping between products, as well as online stores. Increased internet penetration changed online shopping environment to high levels. Net savvies see more and more are shopping online. But at the same time the companies need to reduce the risks related to consumer incompetence by tactics such as making purchase websites easier to navigate, and introducing internet kiosks, computers and other aid in services More than 4 out of 10 Indian consumers are more likely to share (tweet/post review) a negative product or service experience online than they were to share a positive experience.

Change (yes we can) is the classic mantra of the many businesses who are adapting the transformation by putting abundance of efforts to create smart strategies to survive and flourish in this ever dynamic market. Ultimately the reality of any e-business set up is: Regenerate or degenerate. Constant evolution of animal species has kept them from being obsolete. And the same holds true for business that do not desire to degenerate into obsolescence. Businesses have to keep evolving continuously and this evolution has to be fuelled by innovation. Companies have to keep innovating about new ways to communicate

effectively with consumers and to build long-term relevance. Lastly, the application of an e-commerce generates a new revenue stream, expands the market exposure, and decreases the operation cost. Many Fortune 500 companies, such as Dell Computer Corp., have found that their business is never going to be the same as they adapted e-commerce into their business operation. Many well-known "brick & mortar" businesses are starting to establish their presence on the web.

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Communication

Room 607 9:00-10:30, March16

306

**Advertising Effectiveness of Celebrity Types for Political Endorsement and Appeal
Framing of Administration Performance**

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Advertising Effectiveness of Celebrity Types for Political Endorsement and Appeal Framing of Administration Performance

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ABSTRACT

Celebrity political endorsement, a guarantee of candidate/party quality announced by celebrities' endorsement and recommendation with the purpose to elicit voter candidate/party support based on their celebrity status, has become a frequently used campaign strategy in election practices. However, it has received little attention from scholars and many important issues worthy of further exploration still exist. Focused on the choice of endorsers and the design of endorsed content, this research aims to investigate how the types of celebrity endorsers (i.e., political figures or entertainers) in political endorsement advertising affect voters' ad responses. Additionally, combined with related theories and literature on party identification/preference, social distance in construal-level theory, and attitude change/resistance to persuasion, this study examines whether the political parties recommended in ads moderate the ad effects of different framed appeals of party administration performance by changing voters' perceived social distance and mindsets toward processing messages (i.e., accepting or resisting persuasion). Two experiments are conducted in the Taiwanese context. To test the effects of political parties on voters' perceived social distance and construing manners of party-related information, Experiment 1 adopts a between-subject factorial design in which the independent variables are the target party in the experimental context (i.e., Nationalist Party, KMT or Democratic Progressive Party, DPP; the two major parties in Taiwan) and value concerns of party-related actions (i.e., high desirability/low feasibility or low desirability/high feasibility). Four possible decision situations for each party are provided, and the subjects are asked to evaluate the party and predict whether the party would adopt the actions. To clarify the advertising effects of celebrity types and appeal framing in celebrity political-endorsement advertising as well as the possible moderation of parties, Experiment 2 has a 2 (recommended parties in political advertising: KMT vs. DPP) $\times$ 2 (celebrity types: political figure vs. entertainer) $\times$ 2 (appeal framing of administration performance: high level vs. low level) between-subjects factorial design. After reading the experimental ad, subjects evaluate their attitudinal responses and behavioral intentions. The results of two experiments reveal the following: (1) when the target party is consistent with voters' individual party preferences, compared to inconsistent or independent voter conditions, voters' perceived social distance from the party is closer. Additionally, voters would adopt low-level construing manners to form judgments and predictions for party-related decisions; (2) party consistency has a direct effect on voters' ad responses; (3) political figure endorsement, compared to entertainer endorsement, makes voters generate better ad attitudes, party attitudes, and intentions of voting for the advertised party, especially for party identifiers; and (4) the match between party social distance and appeal framing of administration performance leads to better ad effects than does the mismatch. For party identifiers, low-level framing of administration performance can evoke better attitudinal responses from voters under the condition of party consistency. Under the

condition of party inconsistency, high-level framing decreases voters' certainty/confidence in hostile attitudes towards the advertised party. For independent voters, high-level framing can improve their turnout and voting intentions for the advertised party. The implication of these and other findings is discussed.

Keywords: political endorsement advertising, celebrity types, appeal framing, social distance, resistance to persuasion

Economics

Room 607 9:00-10:30, March16

262

Contemporary Economic Pattern after the Technological Revolution, Division and World Economic System Transition

Xu Zhang | *Renmin University of China*

253

EU Main Countries Economic Form and Policy Adjustment- Based on Business Cycle Empirical Analysis

Jin Sun | *Central University of Finance and Economics*

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Contemporary economic pattern after the technological revolution, division and world economic system transition

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ABSTRACT

The technological revolution and the industrial revolution have experienced the evolution of the civilization of the Mediterranean, the Atlantic civilization and the Pacific civilization. The ultimate cause of this evolution is the refinement and deepening of the division of labor caused by the technological revolution and the industrial revolution. In the era of intervening of capital in the science and technology and industrial development, the changes of the world economy and the division of labor are inseparable. At the same time, the expansion of the capital to the international division of the non-production areas consolidates the world economy at the end of the 20th century. On the one hand, it makes the differentiation of the world economy in the 21st century. In the current world economy posed by the three major national or three systems that East Asian economics led by China, the US-led economies in North America and based in the United Kingdom, Germany, the European economy, this deep division of labor in the further development. The result was developing in two different directions: first, the financial capital to the transfer of non-industrial capital will lead to the collapse of the current world economic system. Second, if achieving the new fusion of the financial capital and industrial, we can maintain the existing of the world economic system. Current industrial division pattern and trend in the world economy decide the future of the world economy evolved.

Key word: Technological revolution; Division of work; World economy system; Contemporary pattern

In 1970s, based on division of labor in the worldwide, Wallerstein made use of interdisciplinary methodology to build a “world-system” theory, and researched deeply nearly five centuries of the capitalist world system. Globalization has further been developed since the 1990s, and the World economic situation has undergone profound changes. Since the end of the 20th century, with division of deepening within the commodity production, Gereffi et al. (1994) starting from the global industrial organization, put forward the theory of global commodity or value chain theory.⁴⁷ Henderson (2002) as the “Manchester School” tried to use the framework of the global production networks to resolve the current era of global economic.⁴⁸ These studies provide theoretical support to dissect the world economic structure and methodology, but overall it has not been given a new map of the current world economic system. In fact, the scientific and technological revolution and the division of labor, promote each other, and directly impact the changes of the world economy and its basic pattern.

⁴⁷ Gereffi, G., and Korzeniewicz, M., “*Commodity Chains and Global Capitalism*”, Westport, Conn: Praeger, 1994.

⁴⁸ Henderson, Jeffrey, Dicken, Peter, Hess, Martin, Coe, Neil and Yeung, Henry Wai-chung, “Global Production Networks and the Analysis of Economic Development”, *Review of International Political Economy*, 2002, Vol.9 (3):436-363.

1 、 Generalization of the scientific and technological revolution, the division of work and the change of world economic structure system.

Historically, the development of the scientific and technological revolution has brought about changes in the global division of labor, and further lead to the word economic structure shift from the Mediterranean to Atlantic, and transferred to west coast of the Atlantic Ocean from the eastern shore of the Atlantic Ocean. In the second technological revolution, the third technological revolution, and the depth of the third technological revolution (the fourth technological revolution), in addition to Germany briefly leading, United States became the leader of the world's technological and economic development.

The main consequence of the first scientific and technological revolution: firstly, the world economic center mainly in Western Europe had been enhanced. Among them, the UK's position had been unprecedented strengthening. At the same time, after the United Kingdom, France, the United States, Germany and some European countries, such as Belgium, Switzerland, the Austro-Hungarian Empire in the 19th century on the second half of the successively technological revolution occurred. Russia and Japan in the 1860s after the son of the feudal system reform, to embark on the road of capitalist development. Eventually established capitalist mode of production, the full development of the capitalist free competition, and the unprecedented expansion of the world market formed of the capitalist world economy. Secondly, the first revolution in science and technology and its applications made high-speed development of international trade. International trade growth rate was over the same period in the world's industrial production growth rate. Participate in international trade, changes in the structure of the types of goods and commodities, caused by changes in the international trade flows, and basically formed the Western industrial countries export manufactured goods, the broad agricultural country in the world exports of primary products of the division of labor and trade patterns. The world economic structure has been formed agricultural country dependence on industrial countries. Thirdly, the United Kingdom has become the workshop of the world and the World Trade Center. In the first 70 years of the 19th Century, the UK accounted for only about 2% of the world's population, has been the world's industrial production, has been the world's industrial production 1/3 -1/2 and 1/5-1/4 of the World Trade into their own hands. Fourthly, as the first technological revolution lead to the industrial Revolution, objectively requires the development of democratization in order to adapt to the capitalist mode of production. Governments mostly tend policy of laissez-faire economic policy, given economic development sufficient space. This became the policy consequences of the first technological revolution.

Second, technological revolution started in the 1870s, and human production entered into the age of electricity. The invention of new technologies, more natural science experiments based on a closer relationship between technological progress and scientific progress, that the technology itself more and more scientific. When the new technology is not based on the simple operation of the invention, and is mainly based on the direct application of science. The progress of scientific and technological revolution led to the deepening of the division of labor, and specific performance in the center of the technological revolution in the textile industry and extractive industries to heavy industry, establish a series of new heavy industrial sectors of the manufacturing, chemical industry, automobile industry, oil industry, and so on. Moreover, the scope of the technological revolution more extended. The latter half of the 19th century, the second revolution in science and technology is not only energy power innovation, but extends to the overhaul of the materials, information and transportation technologies, electric energy technology system. Due to the power system of innovation and the emergence

of information technology, has changed the form of the spatial organization of production enterprises it possible to automate the production process. Of course, the biggest consequence is that technology leadership transformed from the UK to Germany and the United States. On the basis of absorbing the latest scientific and technological achievements of the British and French, Germany not only dominated in the electrical and chemical technology invention, but also made significant scientific achievements highest in the world as much as the project. The level of development and the development momentum of the U.S. economy is also very prominent, thus like the internal combustion engine, invented in Europe, but in the United States the fastest and the most commonly been applied; Power technology also mostly invented in Europe, the first power plants built in the United States; Steel new technology invented in the United Kingdom, France, but also the first large-scale use in the United States. Technology and production of close contact, and to accelerate the spread of advanced technology on the international World Technology Center from the UK to Germany and the United States. The third technological revolution began in the 1940s, instead of the traditional industrial process is a series of emerging industries. According to the characteristics of its development can be roughly divided into two stages, one stage this stage from the 1940s to the 1970s, mainly in the extensive development of nuclear energy and space technology, computer technology already exists and continue perfect, but has not yet become the mainstream of social life. The second stage since the 1970s, direct feature of this stage is based on Microelectronics core IT quickly the extensive development of the human society entered the “information society”, it was called “the fourth scientific and technological revolution.”

Globalization since 1990, along with the development of scientific and technological revolution and the division of labor in depth, had a profound impact on the contemporary development of the world economy.

First, the rise of information technology as the core technology industrial revolution, made the foundation for the world economy changes. Production technology includes modular technology and mass customization. With consumer demand tend to diversify and small quantities of manufacturing enterprises mainly parts management processes of decomposition, the share components parts production and management process scale to solve the small quantities of diversified products the contradiction between the needs of large-scale production, which dispersed production process has laid an important foundation for the countries. In addition, sea, air, land transportation technology in the field of development and popularization of significantly reducing the elements and the cost of transportation of goods, to provided realistic conditions for the production of decentralization.

Second, the rise of agile supply chains such as production organization and development became the major causes of the current world economic system reconstruction. Fully autonomous, distributed network organization, agile supply chain, accelerates the accumulation and expansion of international monopoly capital organization. Third, a new wave of liberal varying degrees swept the world, thereby providing an important institutional environment. The deregulation of the national economic freedom and convenience of a important environment and conditional for the re-organization of the international monopoly capital worldwide.

Fourth, a series of bilateral and multilateral agreements signed with the implementation of the regionalization and globalization and rapid development. WTO, IMF, World Bank and other international institutions in trade, finance and other fields to promote the globalization factor

and goods market, created a favorable market environment for the expansion of international monopoly capital.

Factors interact in this series, and the world economy to accelerate reconstruction since the 21st century.

2 、 Changes and the characteristics of the world economy since 1998

States merchandise trade data provided by the United Nations Commodity Trade Statistics Database (UNCOMTRADE), the countries in trade in services provided by the United Nations Conference on Trade and Development Statistics database (UNCTADSTAT) data, the study selected 37 representative countries and regions, 1998-2010 goods and services as an analysis of the trade changes, before the global economic downturn in 2008, total trade accounted for 82.2% of the total world merchandise trade in total trade in services accounted for 82.5% of the total world trade in services in 2010. Which in Europe 17 mainly includes the 14 countries of the European Union, Germany, France, Britain, Italy, Belgium, the Netherlands, Hungary Poland, Ireland, the Czech Republic, Austria, Denmark, Sweden, Spain, in 2010 the total merchandise trade accounted for the EU-27 93%, as well as the two EFTA members Switzerland and Norway, and in Central and Eastern Europe's largest trading nation in Russia; North America 3 of the United States, Canada and Mexico; 10 countries of East Asia as China, Hong Kong, China, Japan, South Korea, Singapore, Indonesia, Malaysia, Thailand, the Philippines and Vietnam; Peripheral seven countries for three Southern cone countries are Brazil, Argentina and Chile, as well as four relatively peripheral area of India.

3. Important position within the division of labor among the East Asian products

1997 years after the Asian financial crisis, as transnational corporations increasingly labor-intensive aspects of the transfer to China, East Asia formed a network of division of labor around China.

First, there is continuous expansion of the scale of trade in the East Asia region. Different from exporting to developed countries as East Asian countries in the flying geese model, regional trade has greatly increased in East Asia as there are different processes for the production thus there are high scale imports and exports in the process. In 1998, 10 regions of East Asia's total exports of \$453.7 billion. Doubled to \$1,728,700,000,000 in 2008, to recover from the crisis in 2010 to \$1.93 trillion; total imports rose from \$446.2 billion in 1998 to 2008, exports in the region and from the region the average annual growth rate of imports in 14.3% and 13.5%. respectively, in 1998-2010 the average annual growth rate meter, 12.8% and 11.9%, respectively. East Asian countries to China to assume the role of regional foreign total exports and total imports more. Overall, East Asia, 10 to exports accounted for the proportion of the total exports of the countries in the region rose from 38% in 1998 to 44.3% in 2008, and continued to rise to 45.7% in 2009. From the point of view of trade and overall trade in the East Asian region, more than the growth of world trade, and the total share of world trade continues to rise, of which exports accounted for 10 regions within East Asia, the proportion of total world exports rose from 8.2% in 1998 to 11.8 in 2009, the proportion of imports rose by 7.9% to 10.3%; East Asia 10 total export share of world exports rose from 21.7% in 1998, rose to 25.8% in 2009, the proportion of total imports rose to 22.8% from 16.9%.

Second, China is now replaced Japan to become the axis of the East Asian region and beyond trade. Extra-regional trade in East Asia in 1998, the largest exporting and importing countries

are Japan, its exports outside the region accounted for 38% of the 10 pairs of regions outside East Asia's total exports, imports accounted for 36.5%. Since then, Japan's status has been replaced by China in 2008, China's exports outside the region accounts for 10 regions of East Asia's total exports rose from 13.2% in 1998, quickly rose to 42% in 2008 and 2010 for East Asia 946.3%. Imports rose from 14.9% in 1998 to 36.7% in 2008 and 2010, East Asia, 944.1% of China's total import and export trade of East Asia region outside hub. From the main object of the East Asian countries on trade within the region, in 2010, 31% of the exports of the 9 regions of East Asia to the Chinese, 27.7% of the imports in the region from China, Chinese the purchase sales market for the axis of the East Asian region. Japan hierarchical division of labor in East Asia network the times axis procurement sales market, Singapore gradually level procurement market, Hong Kong is gradually level sales market.

Again, trade in intermediate goods occupy parts represented by the trade dominance in the East Asian region, and China has become the hub of the parts and components trade in East Asia. Trade goods in the East Asian countries within the region, in 2010, the proportion of exports of intermediate goods to the region in addition to China, Indonesia and Thailand slightly less than 60%, more than 60% of the proportion of the rest of the East Asian countries, including Singapore, the highest proportion accounted for 81.5%. Export commodities from the East Asian region as a whole constitute a point of view, exports of intermediate goods accounted for 65.7% of the region's total exports in 2008; View the over flow of intermediate products, in the East Asia region in 2008, semi-finished products are mainly imported from China (22.1%), Japan (21.7%), South Korea (14.9%) and Singapore (11.8%). Mainly exported to China (28.1%), Japan (14.9%), South Korea (13.7%) and Hong Kong (12.7%); East Asian region parts imported from China (22.1%), Hong Kong (21.7%), Japan (18.2%), Singapore (16.3%) and South Korea (10.8%); mainly exported to China (36.5%) and Hong Kong (20.1%). Hong Kong semi-finished products and parts exports more than 80% of the flow of the Mainland, 50% from the mainland, China is in fact occupy half of the market share of East Asia, parts sales, the market share has 40% of semi-finished products sales, China has become the largest in the inner mediate goods within the region import and export country.

Finally, one of the leading countries in trade in services in the region. 1998-2010, China's service exports increased from \$23.9 billion to \$171.2 billion, an average annual growth of 17.8%, imports of services increased by \$26.7 billion to \$193.3 billion, an average annual growth of 17.9%, is the fastest growing region country. To 2010, China has overtaken Japan to become the largest national trade in services in the region. From the perspective of the development of the productive trade in services in the region from 1998 to 2010, the annual productive services exports increased by 21.2%, to 2010, its exports rose to \$90.1 billion, more than Japan's \$86.5 billion to become the region's largest the production services exporter, imports of services from the production point of view, in 2010, slightly less than Japan's \$80.4 billion to \$73.7 billion. The rapid development of the productive services signs in the evolution of labor division to occupy the leading position in the region.

Therefore, along with the expansion of economic and trade relations, East Asia, the formation of the axis to China, led intermediate products, manifested in form of hierarchical production network products division of labor, and trade in services, in particular, the development of productive and occupies the primacy of the division of labor within the region.

4. European inward integration dominant

Since the late 20th century, in the wave of EU enlargement, European economic integration trends continue to strengthen the formation of Europe as the main axis, semi-finished products and consumer goods trade in Germany, the division of labor within the high degree of integration within the industry.

First, Europe is the world's largest trading bloc, and the intra-regional trade were overwhelmingly dominant. In 1999, Europe 17 total trade accounted for 39.4% of world trade, including intra-regional trade accounted for 25.7% total world trade. With the development of Asia and other emerging economies of the 17 countries in the European trades status relative decline between 1999-2001 and 2009, both the proportion declined slightly by 1.6% and 2.2% respectively, but over 1.6% and 2.2% respectively, but overall did not change the dominance of the European trade in the world trade.

Second, Germany is the axis of the trade, both within and outside the European region. First, Germany is the leading country of the European extra-regional trade, in 1999, the German-regional trade accounted for 23.1% of the sum of the 17 European countries; Subsequently, the decline in the proportion of 21.8% in 2010 is still far higher than the second highest in France (10.6%) and the United Kingdom (10.5%). Second, Germany is the main export target country in Europe, 2010, with the exception of Ireland, Norway, Russia, Spain, the European countries are Germany, as the largest export destination in the region. Region of Germany's total exports of \$676 billion, accounting for 19.9% of the total exports in the region; 2010 is much higher than in France (13%), United Kingdom (10%). The Netherlands (9.2%), Italy (8.4%) and Belgium (7.1%) and other major export countries. Third, Germany is the leading source of imports in the European countries. In addition to Ireland, Norway is the largest source of imports to the United Kingdom and Sweden respectively, the rest of the European countries are Germany's largest source of imports. European regional division of the network structure formed secondary procurement sales market sales to Germany for the purchase of the Axis powers, France, the Netherlands, the United Kingdom, Italy and Belgium.

Again, the semi-finished products and consumer goods trade constitutes a major part of the trade within the European region. Trade product composition in the region of 17 countries in Europe, in addition to Norway and Russia to the export of energy resources and their semi-finished products, mainly, the Czech Republic and Hungary dominated parts trade, other European countries are a higher proportion of semi-finished products and consumers goods to expand each other trade. 2010, Ireland, Belgium, the two types of exports together accounted for 85.6% and 79.1%, respectively, and 17 European countries together accounted for 63.1% of the average. From the source of various types of export goods, Russia, Norway and the United Kingdom are the primary products in the region largest exporter. Germany were the largest exporter of semi-finished products, parts, capital goods and consumer goods; exports of semi-finished products and capital goods in the Netherlands and France, France and Italy in parts exports. France, Belgium and Italy in the consumer goods exports ranked Germany. The main purpose of the similar products in the European countries is to expand trade, the division of labor within the industry as a core feature of regional trade.

Finally, Germany and the United Kingdom accounted for trade in services in the region leading position. The United Kingdom, in the case of falling commodity trade level status, still in service exports, especially productive service export to occupy the first position in

Europe, and that the major UK industry evolution and division of the rise of relying on the external division of the support system.

Therefore, in the European region, it forms the main pattern of German axis, leading productive services to the United Kingdom and Germany, the division of labor within the hierarchical structure of the industry.

5. Regional development in the United States to lead the North American

With the implementation of the United States and Canada ink free trade agreements as well as the rise of the regional division of the network in East Asia, North America and gradually form the axis of the United States, in order to trade in intermediate goods, the high degree of integration and the increasing integration of East Asia's diversified division of labor.

First, intra-regional trade is still dominant, but the decline is significant, East Asia has become a major regional foreign partner. In 1998, Canada and Mexico, the proportion of exports of the region were as high as 85.2% and 88.3%, in 2010, dropped to 76.1% and 83.6%, respectively; proportion of imports in the region decreased by 70.8% and 76.3% to 55.8% in 2010 and 51.5%; The United States is still the basic maintenance of the 1/3 from the proportion of the import and export of the region. The view from the flow of extra-regional trade development of the three countries in North America is mainly to strengthen regional cooperation with East Asian countries represented by China. In 1998, the proportion of Canada, Mexico and the United States imports from China were only 2.6%, 1.3% and 8%, 0.2% and 2.1% to 3.3% in 2010, 14% and 7.2% respectively.

Second, the United States is the axis of the North American region and beyond trade. View from outside the area of trade, the United States accounted for the absolute proportion of the total trade of the three countries outside the region. In 1998, the export outside the region of the three countries in North America, 90.8% and regional imports 88.3% completed by the United States; In 2010, the proportion of still maintain a high level of 86% and 81.9%. United States to Canada and Mexico for the hinterland, the axis of the regional decision of labor in North America.

Again, trade in intermediate products based diversified division of labor. Three countries in North America to see the whole situation from the intra-regional trade, a higher proportion of trade in intermediate goods, accounting for 46.9% in 2010, higher than the 38.9% level in the final product, which has a division of labor within the product characteristics; From the regional division of labor characteristics of the three countries in North America, diversified division of labor.

Finally, the United States occupied the absolute dominance of trade in services in North America. View from the development of trade in services in the three countries in North America, 1998-2010, the three countries has maintained an average growth rate of 6.5%. the total trade in services increased from \$538.1 billion to \$1.1478 trillion. Among them, the U.S. services trade holds absolute dominance, 1998 the remained-2010 level of around 82%. Trade in services from the production point of view, the average annual growth rate of the United States is higher than the other members of the region, 1998-2010 from \$160.5 billion to \$497.3 billion, an average annual increase of 9.9%; their share of productive services of the three countries in North America the proportion of total trade rose by 78.7% to 84.8%.

In summary, North America, mainly the formation of the diversified regional division of labor for the axis to the United States, Canada and Mexico to the hinterland, trade-based intermediate products.

6. Three trade areas with the significant features of China and the United States leading North America and East Asia strengthening the fusion

China, Germany and the United States are leading the development of East Asia, Europe and North America within the integration process. Three axis has become the leading regional integration through mutual trade, China and the United States constitute the major part of the world regional integration by leading the integration between the two large area, as a result, the United States take the leading role in the regional division of labor system.

First, China, Germany and the United States constitute the major part of the world trade, and their role in leading the development of the world trade has strengthened. From the point of regional development, in 2009, the European area accounts for 37% of the world trade, more than 24.2% of East Asia, North America accounts for 15%, three large area accounts for 76.2% of the world merchandise trade. In 2010, the European area accounts for 39.8% of the world trade in services, 19.4% for the East Asia, North America accounts for more than 15.6%, three large area accounts for 74.7% of world trade in services, Europe is still as the top division of labor system. From the point of the three axis, in 2009, China accounted for 8.8% of the total amount of world merchandise trade, Germany occupied 8.2%, the United States accounted for more than 12.8%, the three accounted for 29.9% of world merchandise trade; In 2010, China accounted for 5% of world trade in services, Germany occupied 6.8%, and 12.9% in the United States, China accounted for 24.6% of the proportion of service trade in the world, the United States ranks first in the world.

Second, three axis' mutual trade leads to regional integration. China, Germany and the United States as the core of Trade outside the territory, and trade with the other two important trade areas, and mainly through the other axis. In 2010, 34.3% of China's total exports flowed to east Asia, 20.5% to North America (flow to the United States accounted for more than 87.6%), 20.4% to Europe (flow to Germany accounts for 21.2%); 62.5% of Germany's total exports flowed to Europe, 62.5% to east Asia (flow to China accounted for 53.6%), 8.2% to North America (flowed to the United States accounted for 83.1%); 32.2% of the total export to North America flowed to the United States, 22.5% flowed of east Asia (flow to China has accounted for 31.9%), 20.4% to Europe (flow to Germany accounts for 18.4%). Because the Europe(represented by Germany) focused more on inside trade, so its participation in regional integration is relatively low.

Third, China and the United States lead the two large areas to strengthen the fusion. We can get some conclusion from comparing the mutual trade of the three axis' mutual trade between 2000 and 2010, in 2000, the Germany-US trade accounted for 49.8%, the highest; in 2010, trade between China and US increased from 39.8% to 58.4%, far ahead China- German trade (21.7%), the German-US trade left to the top end, is only 19.9%. Visible, since the end of the 20th century the main change of global fusion is, China and the United States led the trade between the east Asia and North America, replaced the leading role between American and European developed countries since world war ii .

Fourth, final product trade accounted for the main part between the three axis, and China become the production supply base. Look from the distribution of the source of all kinds of

export products, apart from in 2010 87.7% of primary products comes from outside the United States, 69.9% of the consumer goods, 64.6% of the capital goods, 46.6% of the components and 42.5% of the semi-finished products are exported from China. Within the division of labor to the production process of the current era, from semi-finished product to the consumer products, almost all product process links to foreign trade, means China offer the huge production system and the long process of production of each product process; China became the main production supply base of three axes.

Fifth, the United States occupies a significant leading position in the division of labor system. The United States lead very significantly in the field of service trade, especially productive service trade, accounting for more than 15.8% and 17.2% respectively in 1998, trade in services proportion fell slightly to 12.9% in 2010, and the productive service trade small rose to 17.4%, while productive service export grow up to 18.9% in 2009. Combined with leading north American acceleration and fusion with east Asia (led by China), it is not hard to find that the United States is gradually pick up merger depends on the east division within the product of the production system, in order to realize their own constantly refining division and industry evolution, thus forms the competitive advantage in advanced services division, as well as occupies a leading position in the labor division system in east Asia and North America.

All in all, east Asia, Europe, North America constitutes the main part of the global division of labor, China, Germany and the United States become the hinge not only for intra-regional trade but also Inter-regional trade, the three areas continuously mixed with each other. Among them, European occupy the highest proportion of world trade, but the low level of regional integration; East Asia and North America speed up the mix of division of labor system through the China-US economic and trade exchanges, the United States depends on the division of a larger expansion, realizing its own division of labor system evolution. This three trading areas and their relationship with the three axes outline basic pattern of the global division of labor.

(5) The periphery countries tend to be low-end

There are seven periphery countries located outside the three major regions; their overall participation in integration degree is not high, especially since the end of the 20 th century, the international division of labor status tended to be low-end and primarily. Mainly displays in: first, the periphery countries' world merchandise trade proportion is very small. From 2000-2008, India's proportion of world trade grows by 0.8%, compared with other peripheral countries performance is more outstanding. And Argentina's share declines by 0.001% , on the whole, the periphery 7 countries' proportion of the world trade increased 1.9% from 4.2%(in 2008). Secondly, periphery countries trade mainly with large area, but not significantly mix into the integration t. Again, the periphery countries export products structure presents primary trend. In 2000-2010, apart from Argentina and Turkey, the other periphery countries' proportion of primary product export have increase, including to each big trade areas and to the world. Australia and Brazil have the most significant increase, Australia's primary products export proportion to the three main regions rose 28.4%, 21.7% increase in the proportion of primary product export to the world; Brazil rose 23.8% and 23.8%, respectively. All the countries' primary products exports to east Asia has risen more significant, high degree processing products export proportion have different degrees of decline. Finally, except India' service trade keeps relatively large scale and strong growth, the development of other countries are relatively weak. From the point of productive service export, apart from the Indian' information software services industry is developing rapidly,

the export scale of other countries is very small, in 2010, Argentina, Chile, South Africa and Turkey, the productive service export are all less than \$10 billion, and there are small changes in recent ten years, South Africa and Turkey even have significant decline, all of this shows that the periphery countries developed relatively slow in division of labor system evolution, or even reverse.

Therefore, the periphery countries mainly exists in the edge of the global division of labor system, communicate with the three trade area on division of labor through the three axis.

3. The evolution of the world economy and its reflection

Empirical analysis of the share of world trade in goods and services is absolutely the proportion of 37 countries and regions, more than 10 years of trade relations can be sketched out a new map of the world economy since the end of the 20th century. Global presents three trade areas as the main three Axis powers for the coupling hub: North America and East Asia to accelerate integration of peripheral countries is relatively dispersed pattern of division network.

First, a country's industrial upgrading and expansion rely on where the division of labor system. While product diversification and fragmentation of the production process is complicated by the global production, but production data production relying on commodity production and capital to complete the value of proliferation must be "breathtaking jump" basic subsistence production, service production the fact that there is no change, formed just more complex, larger division of labor system; Finer division of labor and the more advanced industries to derive independent, not only depends on the particular aspects of the innovation, the more important depends on the division of labor system expansion that can provide the degree of support. The United States is the North American division of labor by relying on further expansion to the division of labor within the East Asian products, thus achieving a higher degree of industry evolution; Led to integration within the European division of labor system, despite continuing eastward expansion, but lagging behind in regional integration, resulting in the division of the European system refinement, the axis is the degree of the evolution of the national industrial development vitality and so significantly lags behind North America-East Asia systems. China's rapid rise, is the deep integration and to promote the division of labor where the expansion, China has also made remarkable achievements in advanced industrial evolution. This shows that the backward countries only promote the deep division of inward and outward, and where the expansion of the division of labor system, it may achieve industry evolution and sustainable development.

Second, the formation of the current global division of labor pattern is the revolution of science and technology and the global industry evolution the result of joint action. In recent years the practice of the global economy also shows that the developed countries gradually turned to rely on the financial bubble and excessive consumption to drive the global production system operation, deep crisis and global production adjustment or difficult to avoid. Strengthening the coordination of the division of the world over will be the inevitable requirement of the development of the productive forces further.

Third, the developed countries choose different position will contribute to the development of vastly different results. In the new liberalism profound influence on the current process of globalization, many countries in the different degree of development plan, to accept the new liberalism from all the countries in the global division of labor pattern in the status of the change, Argentina, Russia, Mexico, Brazil, South Africa and other countries significantly for

the performance of domestic industrialization process slowed, export structure to primary prod; And after the Asian financial crisis in South Korea, Singapore, China, to open the market in the process of trying to boycott the new liberalism negative effects, expanding and strengthening its production capacity, thus in the industrial development has made remarkable achievements. Industrialization is its low skills, unskilled labor into human capital, and realize the knowledge accumulation and dissemination, to lay the foundation for the subsequent division of knowledge innovation, multiply the necessary process, any will be the inverse of separating labor and production industrialization, primary prod and so on, the price will be one country in the future the lack of independent development ability, this for junior national competition ability weak, especially need to be alert.

Comparative Analysis on the Changes of main European Countries' Economic form-Based on the View of Business Cycle

Jin Sun⁴⁹

ABSTRACT

This paper analyzes the EUROPE main countries' economic forms and tests that they have similar economic forms since England, Germany, French and the PIIGS have strong business cycle pertinence. Through constructing two-dimensional plot of economic form, we research the economic features of these countries after the U.S. financial crisis and EUROPE debt crisis, explaining the changes of the economic forms and policy adjustments as well as EUROPE currency influences based on empirical analysis. At last, this paper puts forward to international policy coordination mechanism and policy suggestions.

Key words: Europe, Economic form, business cycle

1. Introduction and literature review

The U.S. financial crisis had huge influences on the European economy in 2007. After that, Europe took active policies in order to resist the crisis. Under such active economic policies, the growth of European economy finally became positive as well as the CPI in Nov. 2008. However, this didn't last long. In 2010, Greece broke out debt crisis and then Ireland, Portugal, Italy and Spain all fell into the crisis.

The fluctuation of European economy is affected on the one hand by the financial crisis and debt crisis, on the other hand by the role of business cycle. Ioanna et al (2011) and Jason et al (2012) researched on the business cycle of European countries, finding that there exist key countries with high synchronization of cycle and periphery countries with low one. That is to say, the key countries including Germany, French, Belgium, Netherlands and Austria formed a common European cycle; however, Greece, Portugal, Luxemburg and Finland didn't form a common cycle with other countries. Chen and Mills (2010) estimate EMU member countries' business cycle and the research result doesn't accord to the OCA theory idea which is to say that currency union can enhance the degree of synchronization of business cycle. Besides, the observed variables in the EU economy may result in different monetary requirement and finally may reduce the applicability of common monetary policy.

As the stage of business cycle of each country is different, the economic form in the crisis is also different. This paper first analyzes the correlation of the business cycle of the main countries in Europe. Then based on four-quadrant diagram, it researches the short-term cycle fluctuation from depression to recovery and again decline during the financial crisis and debt crisis as well as the relationship between the economic fluctuation and industry policy.

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2. Correlation analysis of the main countries' business cycle in Europe

According to optimal currency area (OCA) theory, if the countries have the same business cycle, then they face symmetric economic shocks (Tower & Willet, 1976). Especially the synchronization of macroeconomic variables is the important behavior of that of business cycle. That is to say, if business cycle is synchronized, then the output growth as well as the CPI will show strong correlation. Thus, we first test the correlation of macroeconomic variables since the financial crisis among European countries. We use eight European countries' GDP and CPI data including U.K., Germany, French as well as PIIGS from the first season of 2007 to the first season of 2012 to calculate correlation matrix. It means that the higher correlation coefficient, the more comparability of the business cycle of each economy. The data is from Economic Commission for Europe.

(1) Empirical test of real GDP growth's correlation

From table 1, we can see that since the financial crisis, the main countries in Europe except Greece have had strong correlation with significant coefficient for two countries' GDP growth between 0.3 and 0.8. The correlation of real output reflects the similar economic form change in the crisis. However, the correlation coefficients between Greece and U.K., Germany, Ireland, Spain are all insignificant. This weak correlation of business cycle witnesses the backward position of Greece and its reason to break out crisis as the first country in Europe. Especially the weak correlation between Greece and Germany as well as French which are the core countries in EU reflects the asymmetric effect on Greece compared with other countries when facing external shocks.

Table 1 the main European countries' correlation coefficient matrix of GDP after the crisis

	U.K.	French	Germany	Italy	Ireland	Spain	Portugal	Greece
U.K.	1.00							
French	0.91	1.00						
Germany	0.85	0.97	1.00					
Italy	0.91	0.96	0.97	1.00				
Ireland	0.80	0.79	0.71	0.74	1.00			
Spain	0.84	0.86	0.83	0.83	0.85	1.00		
Portugal	0.51	0.38	0.30	0.40	0.40	0.32	1.00	
Greece	0.29	0.17	0.14	0.20	0.27	0.47	0.49	1.00

(2) Empirical test of CPI's correlation

From table 2, we can see that all the tested European countries have significant correlation coefficient between 0.3 and 0.8 for each two countries, which shows that they have strong CPI correlation. Correspondingly, compared with other countries, U.K and Greece have lower correlation coefficients. As for U.K., it may be because U.K. hasn't join EU so it maintains its independent monetary policy and exchange rate policy, which results in that U.K. has lower CPI correlation with other countries. Meantime, as for Greece, it further reflects the weak synchronization of Greece with other main countries in Europe.

Table 2 the main European countries' correlation coefficient matrix of CPI after the crisis

	U.K.	French	Germany	Italy	Ireland	Spain	Portugal	Greece
U.K.	1.00							
French	0.56	1.00						
Germany	0.43	0.91	1.00					
Italy	0.67	0.94	0.88	1.00				
Ireland	0.32	0.76	0.92	0.75	1.00			
Spain	0.51	0.93	0.95	0.87	0.87	1.00		
Portugal	0.56	0.80	0.89	0.78	0.89	0.86	1.00	
Greece	0.42	0.63	0.48	0.45	0.43	0.68	0.50	1.00

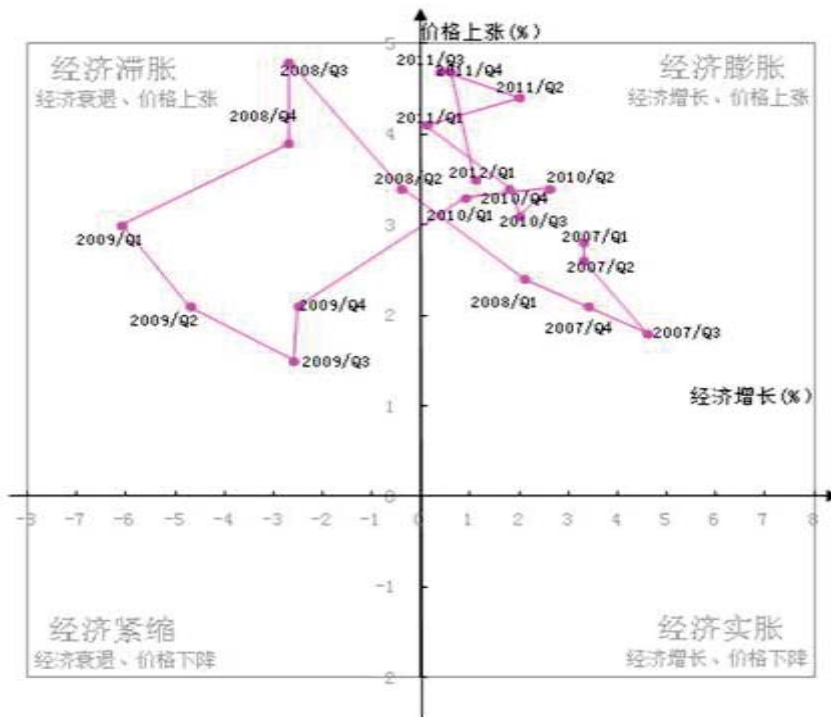
Although the empirical test of the correlation of the macroeconomic variables including GDP and CPI can reflect the synchronization of business cycle and the feature of shocks, they are only phenomenon index for rough judge which are not enough to analyze the deep factors. So in the next stage, we will further research the economic form changes and the industry policy adjustment behind it for the main European countries.

3. Analysis on the business cycle features of the main countries in Europe

In order to better analyze the process of economic form and fluctuation of the main European countries during the financial crisis and the debt crisis, here using a simplified two-dimensional plot determines the economic form changes. Zhu Ji (2005) and Jin Sun (2011) divide business cycle into four stages. In the plot, abscissa represents the economic growth and y-axis represents the price change. This makes it into four quadrants. The first quadrant is economic expansion in feature of economic growth and price rise; the second quadrant is economic stagnation in feature of economic recession and price rise; the third quadrant is economic contraction in feature of economic recession and price fall; the fourth quadrant is economic distention in feature of economic growth and price fall.

(1) The cycle feature of U.K. in the crisis

The economic forms of U.K. in 2008 and 2009 are mainly economic stagnation in the second quadrant until the beginning of 2010 when economy enters into recovery stage. Although Europe breaks out sovereign debt crisis later, U.K. keeps its economic form as expansion in the first quadrant after Feb. 2010. This is mainly because U.K. hasn't join EU thus has little influence from debt crisis and it can adopt loose monetary policy.



Chat 1 the economic form changes of U.K. in the crisis
Data source: UNECE

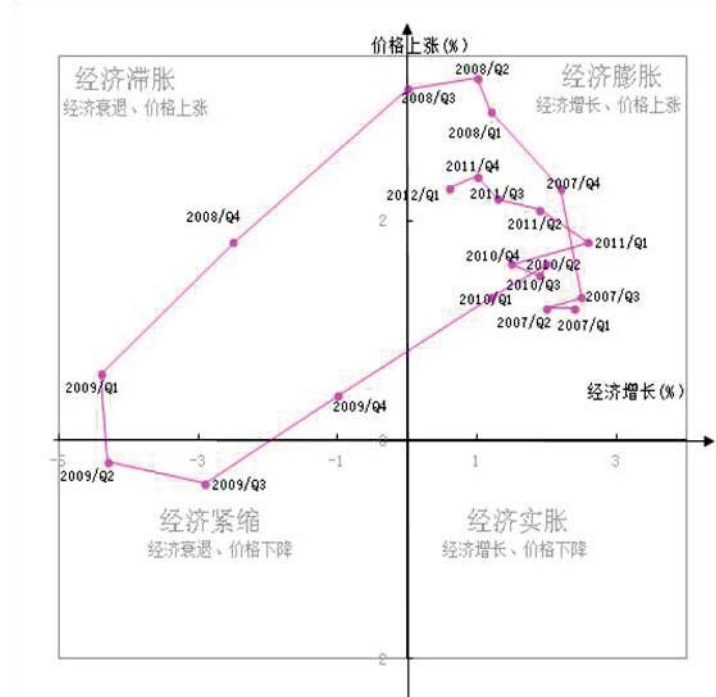
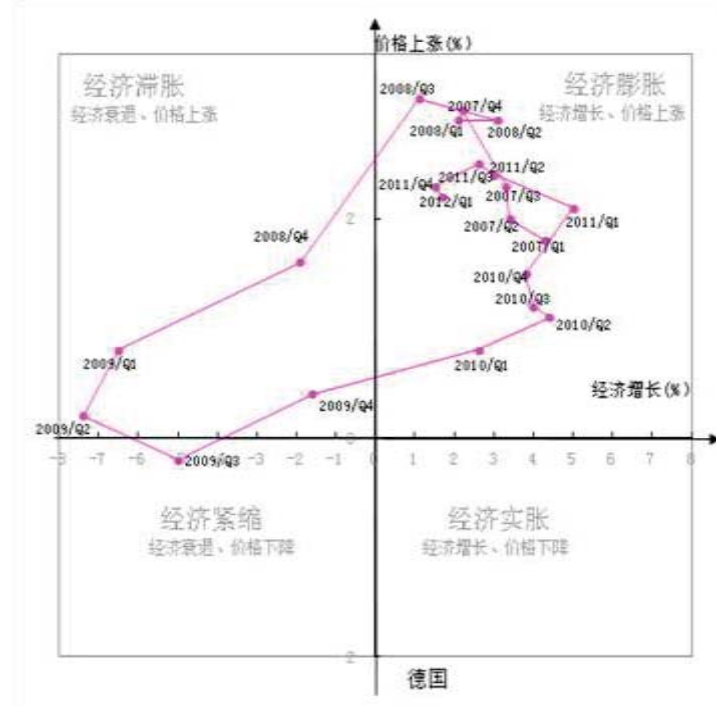
From the chat 1, we can see that U.K. is easily threatened by the systematic risk from big international financial institutions in the financial market as U.K. is one of the international financial centers. So when the sub-prime crisis of U.S. spreads into the world, U.K. bears the brunt of the influence. The economic growth rate turns from positive into negative in the second season of 2008 which is faster depressed than Germany, French and other European countries. Correspondingly, CPI index is increased so it enters into the economic stagnation in feature of economic recession and price rise. Then the economy falls into the deepest recession with GDP growth rate of -6.1% in the first season of 2009. After a series of expansionary monetary policies, the trend of economic recession has been held and the growth rate of GDP becomes positive in the first season of 2010. U.K. economy enters into the first quadrant for economic expansion again.

The prospect of the international growth becomes worse since EU witness the new stage of crisis in 2011. Because of crisis upgrade and financial fragrance as well as interaction affects, U.K. economy grows very slow with only 0.1% GDP rate in the first season of 2011. However, it increases into 1.1% in the first season of 2012 when the Olympic Games are held in U.K. so that there is Olympic effect to some degree (seen chat 1).

(2) The cycle feature of Germany and French in the crisis

Germany economic form has been in the stage of economic expansion until the third season of 2008. However, it enters into stagnation at the end of 2008 and the half year of 2009. GDP growth rate reaches -7.4%, the lowest point, in the second season of 2009. CPI turns from positive into negative (-0.2%) in the third season so that the economy goes into the third quadrant for economic contraction. Soon it comes back to the second quadrant for economic stagnation at the end of 2009. However, Germany economy enters into the first quadrant for economic expansion in the first season of 2010 and keeps in that stage even in the debt crisis. GDP growth reaches 5% in the first season of 2011 and then has decrease, falling to 1.7% a

year later. Meantime, CPI has little change in 2011 and 2012 (seen chat 2).



Chat 2 the economic form changes of Germany and French in the crisis

The economic form of French is the same as that of Germany whose economy proceeds very well and keeps in the first quadrant for economic expansion before the financial crisis. However, it falls into stagnation with the worst GDP growth rate of -4.4% in the first season of 2009. Then French CPI becomes negative and economy enters into the third quadrant for complete contraction. Just as Germany, economy becomes expansion again in the beginning of 2010 and experiences economic recovery and slow-down of the recovery in the 2010 and 2011 separately.

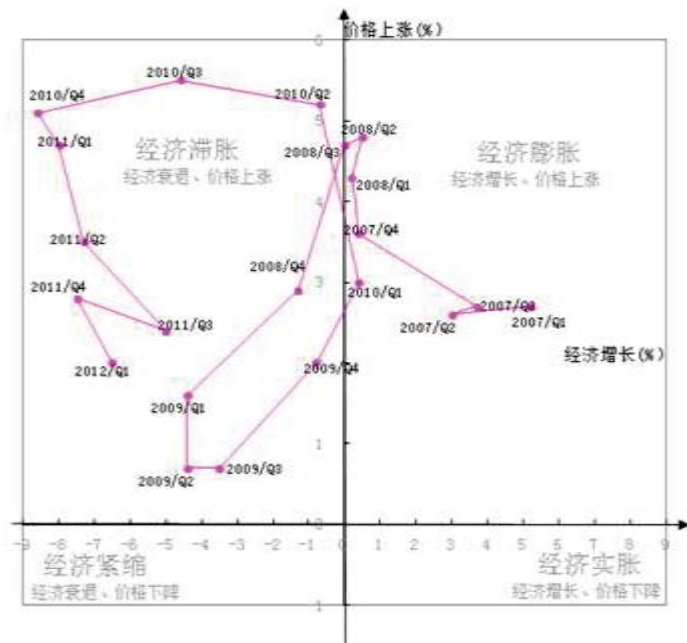
Contrast the economic form changes of French and Germany, although they have similar economic cycle fluctuation, it is not difficult to find their differences. Above all, because Germany is the biggest exports country in Europe as well in the world, external demands have great influence for the GDP growth. Therefore, Germany has heavier shocks than French in the financial crisis. That means depression of world market has greater influence on Germany than French. Furthermore, as EU has unite monetary policy, Germany and French cannot implement their own monetary policy like U.K., so they mainly use fiscal policy. In this condition, since Germany has current account surplus, and its public debt is not heavy, Germany is able to provide the most fiscal expense in Europe for relieving the crisis. Therefore, as Germany expansionary fiscal policy plays great role in the crisis, its economy recovery is more obvious than that of French. In the process of economic recovery, Germany GDP growth rate reaches 5% in the first season of 2011, while that of French only reaches 2.6% at that time.

(3) The cycle feature of PIIGS in the crisis

Greece has 5.2% GDP and 2.7% CPI in the first season of 2007, and then after the financial crisis GDP decreases into zero while CPI increases into 4.7% in the third season of 2008. The economy enters into the second quadrant for economic stagnation at the end of 2008. In 2009, GDP growth rate keeps negative for the whole year until the first season of 2010. As Greece economy is getting better, the Standard and Poor's reduces the sovereign credit ranking so that Greece breaks out debt crisis.

As we know, Greece highly depends on tourism and shipping industry whose economic development level is relatively low. Plus to its 9.1 billion deficits result from holding Olympics in 2004, Greece government's debt over GDP is up to 142.8% in 2010. Its sovereign credit ranking has fallen into the lowest point in 2011, which makes Greece has more severe stagnation than before. Greece GDP grows negatively (-8.6%) and CPI is over 5% at the end of 2010. The GDP growth rates for the four seasons in 2011 are -8%, -7.3%, -5% and -7.5% separately while CPI rates are 4.7%, 3.5%, 2.4% and 2.8%. GDP growth rate in 2012 is -6.5%, worse than the level of 2009. The vicious circle between sovereign debt and finance pressure leads to bigger scale and longer shrink of credit and output in Greece.

As for Italy, GDP growth rates for the four seasons of 2007 are separately 2.5%, 2.3%, 1.9%, and 0.2%, which obviously shows that the economic growth level is very low in Italy before the financial crisis. Actually Italian economic level is below the average level of EU in recent ten years. Italy mainly depends on processing and manufacturing as well as real estate industry. Since the U.S. real estate bubble bursts leading to external market demands decrease, the supporting industries bear the brunt of hit. Italy turns from economic expansion into economic stagnation in the second season of 2008 with GDP growth rate -0.5% and CPI rate 3.6%. The decrease degree is huge in 2009. GDP growth becomes positive again in 2010. However, Standards and Poor's degrades the long-term and short-term sovereign credit ranking on Sep. 21, 2011 resulting in debt crisis. GDP turns into negative level again after the fourth season of 2011 with increased CPI. So actually Italy economic form is switching between the first quadrant and second quadrant. However, compared with the depression caused by the financial crisis, the sovereign debt crisis is not so severe with relatively small economic shocks on economic depression.



Greece

Italy

Financial Inclusion and Microfinance in India: An Overview

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ABSTRACT

The purpose of this paper is to examine the role of micro finance in the empowerment of people and the realisation of financial inclusion in India. While there are reservations about the efficacy of MFIs in handling public money, their growth and achievements demand attention and appreciation. Today the MFIs want the government to empower them for mobilising savings. With increasing demand for rural finance, and the inadequacies of formal sources, the MFIs have immense opportunities in the new avatar of micro credit in India. However, in the light of recent experiences, and the need for qualitative growth, we suggest that MFIs should be managed with better scrutiny in terms of finance and technology as well as social responsibility. This is of utmost importance in order to upgrade MFIs from thrift and credit institutions to capacity-building and livelihood- sustaining associations of people. NGOs have played a commendable role in promoting Self Help Groups linking them with banks. There is, therefore, a need to evolve an incentive package which should motivate these NGOs to diversify into other backward areas.

INTRODUCTION

Credit is one of the critical inputs for economic development. Its timely availability in the right quantity and at an affordable cost goes a long way in contributing to the well-being of the people especially in the lower rungs of society. It is one of the three main challenges to input management in agriculture, the other two being physical and human (Hans, 2006). Thus access to finance, especially by the poor and vulnerable groups is a prerequisite for employment, economic growth, poverty reduction and social cohesion. Further, access to finance will empower the vulnerable groups by giving them an opportunity to have a bank account, to save and invest, to insure their homes or to partake of credit, thereby facilitating them to break the chain of poverty. But India is lagging behind in this respect so it has become the matter of concern.

In 1947, the first survey of rural indebtedness (All India Rural Credit Survey) conducted by the Reserve Bank of India (RBI) documented that moneylenders and other informal lenders met more than 90 per cent of rural credit needs. The share of banks in particular was only about 1 per cent in total rural household debt. The ratio remained low until 1971 when it was 2.4 per cent, although the share of formal sources of credit in rural areas increased steadily to 29 per cent due to the rising share of cooperatives.

The Situation Assessment Survey (NSSO, 2003) indicated that out of the total 89.3 million farmer households in the country, 84 percent (750 million) households were small and marginal farmers and more than half (51.4 percent) of the total households were non-indebted. Further, out of the total 43.4 million indebted households, 20.3 million (46.8 percent) households had availed financial services from informal sources. The NSSO survey of farmer households for 2003 shows that 45.9 million farmer households in the country that is, 51.4 per cent out of the total 89.3 million households do not access credit either from institutional

and non-institutional sources. Further, only 27 per cent of the total farm households are indebted to formal sources; in other words 70 per cent of the farmhouses do not have access to formal credit sources (Rangarajan, 2007).

Banking data reveal that credit exclusion is severe in 139 districts of the country. In these districts, only 10 per cent or less out of 100 persons have access to credit from the fact that the exclusion is large, there is also a wide variation across regions, social groups and asset holdings. The poorer the group, the greater is the exclusion (Rangarajan, 2007). The results of the All-India Debt and Investment Survey of 2002, also indicate that the share of the non-institutional sources, in the total credit of the cultivator households, had increased from 30.6 percent in 1991 to 38.9 percent in 2002 (Karmakar, 2002).

The inference of these findings is that in spite of a large network of the institutional credit system, it has not been able to adequately penetrate the informal rural financial markets and the non-institutional sources continue to play a dominant role in purveying the credit needs of the people residing in rural areas.

Thus, important challenge facing the banking sector is to extend financial services to all sections of society. Like others, the poor need a range of financial services that are convenient, flexible, and affordable and not just loans. At this juncture the introduction on “financial inclusion” comes from the recognition that this can serve the interests of both society and the banking system. As a complementary to this, micro-finance¹ can work as a powerful tool to fight poverty became the effective approach of financial inclusion. With the new philosophy and policies pertaining to micro credit, micro finance institutions (MFIs)² such as Self Help Groups (SHGs)³ have emerged and they now have a strong footing in the developing countries such as Bangladesh, India etc.

Objectives

The objectives for this paper are as follows:

- To explain the role and importance of financial inclusion in Indian Financial System.
- To analyse the different approaches of financial inclusion.
- To examine the role of banking system in extending banking services for financial inclusion.
- To enumerate the achievements and problems of SHG microfinance in including the excluded section of the society.
- To suggest some policy prescriptions

I. Approaches of Financial Inclusion:

According to C. Rangarajan there are six approaches in the system of Financial Inclusion, they are, as follows.

- First, credit to the farmer households is one of the important elements of financial inclusion among them providing credit to the marginal and sub marginal farmers as well as other small borrowers is crucial to the need of the hour.
- Second, rural branches must go beyond providing credit and extend a helping hand in terms of advice on a wide variety of matters relating to agriculture.
- Third, in district where population per branch is much higher than the national average commercial banks may be encouraged to open the branches.
- Fourth, there is need for the simplification of the procedures in relation to granting of loans to small borrowers.

- Fifth, the further strengthening the SHG-Bank Linkage Programme (BLP), as it has proved to be an effective way of providing credit to very small borrowers.
- Sixth, the business facilitator and correspondent model needs to be effectively implemented.

II. Inclusive Growth: Meaning and Challenges

The banking industry has shown tremendous growth in volume and complexity during the last few decades. Despite making significant improvements in all the areas relating to financial viability, profitability and competitiveness, there are concerns that banks have not been able to include vast segment of the population, especially the underprivileged sections of the society, into the fold of basic banking services (Thorat, 2007a). So, this lead to the emergence of for Financial Inclusion as a strategy to bring so called excluded people in to the mainstream. Financial inclusion is delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups. As banking services are in the nature of public good, it is essential that availability of banking and payment services to the entire population without discrimination is the prime objective of the public policy (ibid). Although credit is the most important component, financial inclusion covers various financial services such as savings insurance, payments and remittance facilities by the formal financial system to those who tend to be excluded (Mahendra S, 2006).

In India, the drive for financial inclusion, initiated by the Reserve Bank of India, has thus far involved ensuring access to at least one zero minimum-balance ‘no frills’ savings bank account to every household. In this context, at least one district in each state has been brought under the purview of this drive with public sector banks in the region taking the lead to open at least one bank account per family in the district.

The broad objective of Financial Inclusion (FI) is to extend the scope of activities of the organized financial system to include within its ambit people with low incomes. Through graduated credit, the attempts must be to lift the poor from one level to another so that they come out of poverty (Rangarajan, op. cit.).

Inclusive growth encompasses ideas related to basic needs and equity. It focuses on broad – based growth so that growth covers all strata of society. It seeks to bridge the various divides that may fragment the society. Reduction in poverty and disparities of income and ensuring every one a basic minimum standard of living are the objective of inclusive growth. In this context access to finance by the poor and vulnerable groups has to be recognized as a pre requisite for poverty reduction and social cohesion. It has to become an integral part of the efforts to promote inclusive growth. In fact, providing access to finance is a form of empowerment of the vulnerable groups (ibid).

Thus, limited access to affordable financial services such as savings, loan, remittance and insurance services by the vast majority of the population in the rural areas and unorganized sector is believed to be acting as a constraint to the growth impetus in these sectors. Access to affordable financial services - especially credit and insurance - enlarges livelihood opportunities and empowers the poor to take charge of their lives. Such empowerment aids social and political stability. Apart from these benefits, FI imparts formal identity, provides access to the payments system and to savings safety net like deposit insurance. Hence FI is considered to be critical for achieving inclusive growth; which itself is required for ensuring overall sustainable overall growth in the country. The financially excluded sections largely comprise marginal farmers, landless labourers, oral lessees, self employed and unorganized

sector enterprises, urban slum dwellers, migrants, ethnic minorities and socially excluded groups, senior citizens and women (Thorat, 2007b).

Inclusive financial system, one that allows broader access to financial services, can lead to faster and more equitable growth. Such a system allows poor households to save and manage their money securely, decreases their vulnerability to economic shocks and allows them to contribute more actively to their development. Increasingly, with the proliferation of micro finance initiatives, there is evidence that inclusive financial systems can empower poor households socially as well in other words financial inclusion is delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups (Thorat, 2007a). Although credit is the most important component, financial inclusion covers various financial services such as savings insurance, payments and remittance facilities by the formal financial system to those who tend to be excluded (S. Mahendra, op. cit.). In the context of India becoming one of the largest micro finance markets in the world especially in the growth of women's savings and credit groups such as Self Help Groups (SHGs) and the sustaining success of such institutions which has been demonstrated by the success of SEWA bank in Gujarat, low cost banking is not necessarily an unviable venture/proposition.

One common measure of FI is the percentage of adult population having bank accounts. Going by the available data of 2005 on the number of savings bank accounts and assuming that one person has only one account, (which assumption may not be correct as many persons could have more than one bank account) we find that on an all India basis 59 per cent of adult population in the country have bank accounts – in other words 41 per cent of the population is un-banked. In rural areas the coverage is 39 per cent against 60 per cent in urban areas. The un-banked population is higher in the North Eastern and Eastern regions (Thorat, 2007b).

The extent of exclusion from credit markets is much more, as number of loan accounts constituted only 14 per cent of adult population. In rural areas, the coverage is 9.5 per cent against 14 per cent in urban areas. Regional differences are significant with the credit coverage at 25 per cent for the Southern Region and as low as 7, 8 and 9 per cent respectively in North Eastern, Eastern and Central Regions (Thorat 2007b).

The extent of exclusion from credit markets can be observed from a different viewpoint. Out of 203 million households in the country, 147 million are in rural areas – 89 million are farmer households. 51.4 per cent of farm households have no access to formal or informal sources of credit while 73 per cent have no access to formal sources of credit (ibid).

Table 1: Coverage of Banking Services in India

Region	Current Accounts	Savings Accounts	Total Population	Total No. Of accounts	No. of acc. Per 100 of population
North	4215701	52416125	132676462	56631826	43
North East	476603	6891081	38495089	7367684	19
East	1814219	47876140	227613073	49690359	22
Central	2202217	64254189	255713495	66456406	26
West	3178102	49525101	149071747	52703203	35
South	4666014	83386898	223445381	88052912	39
All India	16552856	304349534	1027015247	320902390	31

Source: Situation Assessment Survey 59th Round, National Sample Survey Organisation 2003

One of the benchmarks employed to assess the degree of reach of financial services to the population of the country, is the quantum of deposit accounts (current and savings) held as a ratio to the population. As above table 1 reveals that in northern region out of 100 persons only 43 persons hold a account in a bank. While coming to the North Eastern Region it is quite low that is just 19. Thus table reveals that access to bank services is low, as well as there exists a large variation across the regions in credit accessibility. Another thing is while compared to the developed world; the coverage of our financial services is quite low. For instance, as per a recent survey commissioned by British Bankers' Association, 92 to 94 per cent of the population of UK has either current or savings bank account (Leeladhar, 2005).

The figures ultimately reveal that there is lack of outreach of banking services to the population, at this juncture micro finance services doing well in bringing excluded population to the main stream of formal banking system.

III. Background or Reasons to the growth of Micro finance Self Help Groups.

After independence, the structure of rural credit institutions, with co-operative bank and mortgage bank catering to short term and long term credit needs respectively. The assessment of performance of co-operative by All India Rural Credit Survey Committee in 1954 brought the fact that volume of credit supplied by the co-operative movement was insignificant, accounting only 3per cent of the total borrowing of cultivators. It revealed that the share of Institutional agencies, comprising the Government, the co-operative and commercial banks in financing the borrowings of rural household was only 7.3per cent in 1951-52 corresponding to the share of private money lenders was high as 68.6per cent (Lalitha, 1998).

The Nationalization of SBI in 1955 had drawn in to rural banking. But other commercial bank kept away from it. The All India Rural Credit Review Committee appointed by RBI under the chairman, B. Venkatappaih, submitted its report in 1969, showed the inadequacy of co-operative system alone to meet the credit requirements of rural sector. Committee prepared the multi agency approach to rural finance. It was only with social control banks in late 1960's and Nationalization of 14 commercial banks in 1969, followed by 6 more in 1980, that rural orientation of commercial banks started in a systematic way. (Lalitha, 1998) In 1980-81 the Government initiated Integrated Rural Development Programme (IRDP) with objective of directing subsidized loan to poor self-employed people through banking sector. The financial sector developed in India by the late 1980s was criticized as largely target and supply driven. High default rates; corruption and high degree of suspicion among bankers about the credit worthiness of poor people were the major features of the time. Savings products were inflexible and inappropriately designed and appropriate insurance products few and far between. On the credit side the, while the in the rural borrowing supplied by informal sources fell to 40 per cent in 1991, household with the least assets were far more dependent on informal sources (Mahajan, 2000, cited in Sriram and Fisher). Borrowers faced high transaction costs to secure subsidized loans, making their real cost 22 to 33 percent.

Fisher Sriram and points out that, formal financial sector unsuccessful to recognize the divergence between the hierarchies of credit needs and credit availability. The result is the adverse use of credit. Credit use start with consumption purpose, which are only being met, through informal sources at high cost. Higher needs come in to play when the lower needs are satisfies. However credit (often subsidized rate) is usually available for new enterprises (i.e.

for diversification). Money is fungible, loan therefore taken for diversification but used in lower rungs of hierarchy. This implies that any appraisal of loan is not honoured resulting in the adverse usage and hence adverse repayment performance (Fisher and Shriram, 2002).

The success of few Non Governmental Organisations (NGOs) like Mysore Resettlement and Development Agency (MYRADA) in-group lending, made the government in shifting the strategy of women development and empowerment. Under Development of Women and Children in Rural Areas (DWCRA) programme through group based approach (Rajshekar, 2004). Thus group based approach started in a very modest manner. However the first interest in informal group lending in India took shape during 1986-87 on the initiative of NABARD. This apex bank for rural development, took a research project on SHGs as a channel for delivery of micro finance in the late 1980s. Amongst these MYRADA sponsored research project on 'Savings and credit management' of SHGs was partly funded by National bank for Agriculture and Rural Development (NABARD) in 1986-87. In the very next year, in association with Asia Pacific Rural and Agricultural Credit Association' (APRACA), the bank (NABARD) undertook a survey of 43 NGOs in 11 states, to study the functioning of micro finance Self Help Groups (SHG) and their collaboration possibilities with the formal banking system. Both these research projects threw up the encouraging possibilities and NABARD initiated a pilot project called SHG-bank linkage project (Satish 2005, NABARD 1991).

In 1991, the macro economic conditions propelled the government to introduce structural changes in the economy, commonly referred to as economic reforms of 1991. Karmakar remarked that the immediate impact of reform to the financial sector become necessary by 1990's have in many ways made things worse for the poor people. There has been drastic fall in rural credit. The share of rural credit in the total credit disbursement by commercial banks, which grew from 3.5 to 15 percent form 1971 to 1991, has now declined again to 11 percent in 1998 (Sa- Dhan, 2004).

Even after the institutional finance came in to being as banking sector emerged, the need for 'micro' credit characteristically for the poor section of the society was unmet by the formal banking sector. The nature of formal banking sector, with its emphasis on 'collateral based lending' could not cater the needs of smaller borrowers, especially women, who were typically resource poor and possessed negligible assets to offer as collateral. Given the male dominated rural society, prior to 1990s there were hardly any credit schemes designed for rural women (Karmakar, 2002).

All these development resulted in a fall in the availability of credit from formal financial system, leaving informal sources as well as SHGs and MFIs to fill this gap (Fisher and Sriram, 2002). Even the government policies are also stared focusing from development towards empowerment of women through group-based approach.

IV Micro finance: Meaning and Issues of Concern

The linkage between "self help groups" and banks has been highly successful in furthering financial inclusion. The cooperation between the formal banking system and micro-finance organisations has also been encouraging. Micro finance (MF) in the recent past has emerged as a potential instrument for poverty alleviation and women empowerment. MF intervention refers to provision of access to small loans without physical collateral to the poor, especially the women, while encouraging them to save regularly in order to combine thrift and self-help for their own development. MFIs consist of Refinance Institutions, Banks, Non Government Organisations and Self Help Groups dealing with small loans and deposits in rural, semi urban or urban areas enabling people to raise savings, productive investments and thereby their standard of living (Nadarajan and Ponmurugan, 2006).

As already told one of the ways in which access to formal banking services has been provided very successfully since the early 90s is through the linkage of Self Help Groups (SHGs) with banks. SHGs are groups of usually women who get together and pool their savings and give loans to members. Usually there is a NGO that promotes and nurture these groups. National Bank for Agriculture and Rural Development has played a very significant role in supporting group formation, linking them with banks as also promoting best practices. The SHG is given loan against guarantee of group members. The recovery experience has been very good. Banks provide credit to such groups at reasonable rates of interest. However the size of loans is quite small and used mostly for consumption smoothening or very small businesses. In some SHGs, credit is provided for agricultural activities and other livelihoods and could be several times the deposits made by the SHG.

Microfinance has drawn attention to an entire sector of borrowers who had been previously poorly served by the formal financial sector - and MF has demonstrated how to make lending to this sector a viable proposition. However the rates of interest charged are quite high, typically 12 to 30 per cent, mainly on account of the high transaction cost for the average loan size that can be quite small. Compared to the informal sector, perhaps the rates are lower, but issues are raised whether these rates are affordable - in the sense whether they would leave any surplus in the hands of the borrowers and lead to higher levels of living.

For commercial banks, the lower cost of funding, advantages of size and scale gives scope for cross subsidization and their interest rates are more competitive compared to the MFIs, but they have not been as successful in dealing with the last mile issue. The partnering with SHGs and MFIs with reasonable cost of funding by the banks has been seen as a more optimal approach till now (Thorat, 2007b).

The financial inclusion attained through SHGs is sustainable and scalable on account of its various positive features. One of the distinctive features of the SHG- BLP has been the high recovery rate. However the spread of SHGs is very uneven and is more concentrated in southern states. This regional imbalance needs to be corrected and special efforts in this regard may have to be made by NABARD. SHGs also needed to graduate from mere providers of credit for non-productive purposes to promoting micro enterprises. However, there is no need to provide interest rate subsidy to the SHGs. Banks do provide them credit at reasonable rate of interest (Rangarajan, 2007).

There have been several institutional innovations in financial services by including civil society. Followed by the success of SHG- BLP and Bangladeshi Grameen model, many of the NGO's have taken to financial intermediation by adopting innovative delivery approaches. MFIs have been playing an important role in substituting moneylenders and reducing the burden on the formal financial institutions. With the objective of ensuring greater financial inclusion and increasing the outreach of the banking sector, banks have been allowed to use the services of NGO's, SHGs, MFIs and other civil society organizations as intermediaries in providing financial and banking services through the use of business facilitator and correspondent models. Provision for this kind of financial intermediation has opened new and diverse avenues to address the issue of financial inclusion by banks (S. Mahendra, op. cit.).

The SHG-Bank Linkage Programme launched by NABARD in 1992 continues to be the predominant Micro-Finance (MF) model in the country. It represents the union of the banking system comprising the public and private sector commercial banks, Regional Rural

banks (RRB), and Co-operative Banks with several organizations in the formal and semiformal sectors to facilitate the provision of financial services to a large number of poor clients. It is a proven method of financial inclusion, providing un-banked rural clientele with access to formal financial services from the existing banking infrastructure. During the year 6, 86,408 new SHGs were credit linked with banks as against 6, 20,109 during 2005-06, taking the cumulative number of credit linked SHGs to 29, 24,973. The phenomenal outreach of the programme has enabled an estimated 409.5 lakh poor households to gain access to MF from the formal banking system as on 31 March 2007, registering a growth of 24.2 per cent over the previous year (NABARD, 2007).

However, one has to be very cautious about the attempts being made by the vested interest groups to substitute the need for expansion of formal banking structure to the hitherto un-banked areas with SHGs and NGOs, where complaints of high interest rates charged from ultimate borrowers and examples of coercion are not too insignificant (Mitra, 2007).

The Reserve Bank of India has identified large gap in the demand and supply of credit to the poor and suggests the urgent need to widen the scope, outreach and scale of financial services to cover the un-reached populace. Estimates reveal that the credit support for poor households in India is of the order of Rs.450,000 crore. Some micro level studies show that the poor still continue to depend on informal sources of credit, up to 60 per cent of the household demand. These initiatives, which were started as an outreach programme, not only aimed to promote thrift and credit but made immense contribution towards empowerment of rural women (The Hindu Business Line, 2007).

Micro finance still plays a modest role in India. At the All India Level less than 5 per cent of poor rural households have access to micro finance (as compared to 65 per cent in Bangladesh) with significant variation exists across the states (Basu and Srivastava, 2005).

There is skewed growth of SHGs across the regions. The year 2006-07 witnessed the spread of the MF programme in resource-poor regions of the country indicating a marked shift from its initial concentration in the southern region. The cumulative share of non southern regions rose from 29 per cent as on March 2001 to 48 per cent as on March 2007. This is mainly because of presence of large number of NGOs operating in South Region

Table 2: Growth of Credit Linkage of SHGs- Regional Spread

Region	Number of SHGs Credit Linked			
	2000-01	Cumulative	2006-07	Cumulative
Northern	4,221	9,012	48,921	1,82,018
North Eastern	160	477	29,237	91,754
Eastern	11,057	22,252	1,31,530	5,25,881
Central	8,631	28,851	64,814	3,32,729
Western	6,911	15,543	1,04,193	2,70,447
Southern	1,09,218	1,87,690	3,07,713	15,22,144
Total	1,40,198	2,63,825	6,86,408	29,24,973

Khandker, while estimating the impacts of micro finance on savings and borrowings found that micro credit not only increases involuntary savings, but also induces voluntary savings (Khandker, 1998). Apart from financial services Micro finance Institutions (MFIs), involved in providing training and imparting knowledge. Thus micro finance today treated as a developmental tool (Ledgerwood Jonna, 2000) Insurance is another component of micro

finance, which has been collaboration with microfinance of late. Since microfinance package is convenient for small savers, MFIs included Insurance component to suit the need of poor, who often excluded from such financial services.

During the last two decade there has been a profile growth of voluntary organizations in India. The main causes for such proliferation are; the increase in the number of people below poverty line, the increase in the flow of funds for this sector from various sources and the increase in the number of unemployed in the country. From the above description it could be stated here that, formation of SHGs in rural areas through NGOs has kindled new hope of change and development in the status and role of women folk, who are otherwise powerless and marginalized members of the society. Now they are able to grow economically and socially as members have also accepted the changed role of their women folk and most of the time they are supportive to them. In addition they are able to get financial assistance from women folk, which were not possible earlier (Patil, 2006).

Table 3: Region Wise Spread of SHG-BLP Up to 31'st March 2006

REGION	Percentage
SOUTHERN REGION	58
NORHERN REGION	5
NORTH EASTERN REGION	2
EASTERN REGION	17
CENTRAL REGION	12
WESTERN REGION	6

Source: NABARD Annual Report 2005-06

Table 3 above clearly shows that there are vast credit variations among the regions. Among the regions, southern region is the best region in financing SHGs. As per the 2006-06 NABARD Report in southern region 856,769.21million rupees were distributed among the SHGs. Next to that the performance of eastern region, central region and western region is moderate and the credit distributed to the regions is 93542.04, 80500.85 and 52513.95 million rupees respectively. The northern and northeast regions are comparatively poor and they have distributed 39844.13 and 16569.97 million rupees respectively. While considering the number of groups the region southern, central region, eastern regions have enrolled more SHGs.

There is, at present, a high degree of concentration in the southern states with just two states, Andhra Pradesh and Tamil Nadu accounting for more than 66per cent of the SHGs receiving loans through bank linkage, with the coverage in Andhra Pradesh being nearly 53 per cent of total SHGs (March 2005). These states have a history of women's enterprise, higher levels of literacy and strong cooperative institutions. SHG-bank linkage has not as yet made an impact in the poverty belt of the northern, central and eastern regions.

V. Policy Prescriptions

It is becoming increasingly apparent that addressing financial exclusion will require a holistic approach on the part of the banks in creating awareness about financial products, education, and advice on money management, debt counselling, savings and affordable credit. The banks would have to evolve specific strategies to expand the outreach of their services in order to promote financial inclusion. One of the ways in which this can be achieved in a cost-effective manner is through forging linkages with microfinance institutions and local

communities. Banks should give wide publicity to the facility of no frills account. Technology can be a very valuable tool in providing access to banking products in remote areas. According to Prof. M.S. Swaminathan, the noted agricultural scientist, “SHGs, will however, become sustainable only if they have backward linkages with technology and credit and forward linkages with processing and marketing organisations” (Swaminathan, 2006). ATMs cash dispensing machines can be modified suitably to make them user friendly for people who are illiterate, less educated or do not know English. The banks need to redesign their business strategies to incorporate specific plans to promote financial inclusion of low income group treating it both a business opportunity as well as a corporate social responsibility. They have to make use of all available resources including technology and expertise available with them as well as the MFIs and NGOs. NGOs have played a commendable role in promoting SHGs and linking them with banks. NGOs, being local initiators with their low resources, are finding it difficult to expand in other areas and regions. There is, therefore, a need to evolve an incentive package which should motivate these NGOs to diversify into other backward areas.

Our banking system must be prepared to deal with the opportunities of higher growth, and the challenges of ensuring more equitable growth. In dealing with the needs of rural enterprises and of small and medium enterprises in urban areas, banks have to look for new delivery mechanisms. These must economize on transaction costs and provide better access to the currently under-served. To serve new rural credit needs, innovative channels for credit delivery will have to be found. A key requirement of greater “financial inclusion” would be a reduction of transaction costs. (PM’s Address at the Canara Bank Centenary Celebrations, June 23, 2006 Bangalore). Till now, micro financing has been a grey area in the finance sector as the current laws allow only the entities registered with RBI to raise deposits and lending activities. In view of the rising micro-financing activities in the country, a need has been felt to regulate the unregulated business in this sector and also provide legal framework to facilitate the credit flow in rural areas (Tiwari, 2006). The Micro Financial Sector (Development and Regulation) Bill 2007 has been tabled in the Parliament (The Hindu Business Line, March 2007).³ MFIs fear that regulation might stifle growth, but analysts say that it is important to put them under scanning (Patnaik, 2006). Micro-insurance is a key element in the financial services package for people at the bottom of the pyramid. The poor face more risks than the well off. It is becoming increasingly clear that micro-insurance needs a further push and guidance from the Regulator as well as the Government. (GOI, 2008)

Our study reveals that micro credit is not always the final answer or the best solution for unemployment or poverty or any other situation. Destitute and hungry people with no income or means of repayment need other kinds of support before they can make good use of the loans. Financial inclusion is but one species of a large genus of human capacity building. Prof. Swaminathan also suggests the establishment of SHG Capacity Building and Mentoring Centres (Swaminathan, op. cit). While the functioning of MFIs at the grassroots level ensures economic decentralisation, for a complete empowerment such a measure must be supported by a broader human rights framework. Also, financial inclusion as a policy measure should be followed up by building up suitable database, which could serve as a guide to assess the impact of credit policies from time to time and reorient schemes of financial assistance to the targeted groups. The MFIs should be strengthened with the tools of managerial expertise, user-friendly technology and with the principles of good governance and social responsibility.

¹Microfinance: Micro finance is a financial service of small quantity provided by financial institutions to the poor. These financial services may include savings, credit insurance, leasing, money transfer, equity transactions etc. that is any type of financial service provided to customers to meet their normal financial needs life cycle, economic opportunity and emergency.

² Micro Finance Institution (MFI): A MFI is an organization that acts as an interface between the formal credit delivery institutions and credit seekers, with an aim to assist for the socio economic development of poor and marginalized people. MFIs are essential to encourage micro enterprises and empower local people including women. The geographical distribution of MFIs is very much concentrated in the Southern India where the rural branch network of formal bank is excellent.

³ Self Help Group (SHG): A Self-Help Group (SHG) is a registered or unregistered group of micro entrepreneurs having homogenous social and economic background voluntarily, coming together to save small amounts regularly, to mutually agree to contribute to a common fund and to meet their emergency needs on mutual help basis. It is a voluntary association of people formed to attain certain collective goals, both economic and social. Each group consists of 10-20 members. A group could be exclusively male or female, or even mixed. However majority of SHG's are female groups.

⁴ Micro Financial Sector (Development and Regulation) Bill 2007: The Bill, table in the Lok Sabha by the Finance Minister on March 20, 2007, makes the National Bank for Agriculture and Rural Development (Nabard) the regulator for the micro-financial sector. Registration of micro-finance organisations with Nabard mandatory and no institution (including existing) can carry out business of offering thrift services without obtaining certificate of registration. For seeking registration, the organisation should have minimum net owned funds of Rs.5 lakh. For safeguarding the interests of the depositors, the Bill proposes constitution of a reserve fund, where minimum 15 per cent of the net profit or surplus realised out of thrift services will be parked. The Bill also empowers Nabard to frame a scheme for the appointment of one or more Micro Finance Ombudsmen for settlement of disputes between clients and micro finance institutions (<http://www.thehindubusinessline.com>).

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Education

Room 607 9:00-10:30, March16

057

A Study on the Influence of Self-concept and Social Support on Occupational Choice Intention

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A Study on the Influence of Self-concept and Social Support on Occupational Choice Intention

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ABSTRACT

The main purpose of this study is to investigate the correlation among college students' self-concept, social support, academic performance, and occupational choice intention. The research framework was established based on literature review and the correlation among research variables. This study conducted a questionnaire survey on college students in Taiwan, and retrieved 1,406 effective samples. The data were analyzed with statistical analysis using Amos. Self-concept has positive and direct effects on occupational choice intention. Social support has a positive and direct effect on academic performance. Self-concept and social support have not significant effects on occupational choice intention through the mediating effect of academic performance. The research findings can serve as references for higher education institutions to improve career education in colleges, and for adjustments of educational systems in order to improve educational planning, increase students' workplace cognition, and cultivate their workplace competence for future career choices.

Keywords: self-concept, social support, occupational choice intention

INTRODUCTION

Students need to utilize the career resources and assistances provided by universities, deliberate over their short-term and long-term plans, learn about various industries and jobs, and cultivate the professional skills and competencies required for their desired occupations, in order to stay on the right career paths. On the other hand, university education should cultivate the professional knowledge and skills needed by students in order to help them making the right career choices.

University students are expected to be the intellectuals of the society, and possess the abilities and traits to meet the needs of the workplace. As enterprises are raising the requirements for job seekers' educational and professional backgrounds, and there is increasingly competition in the job market, the employment preparation for fresh graduates does not start after the

graduation, but while the students are still in school. The students need to cultivate their professional knowledge and skills, enhance self-concept through interaction with families, friends, teachers and peers, in order to prepare for the career choices.

Eisenberger et al. (1986) suggested that, from the perspective of social support theory, if individuals obtain support in the society to which they belong, their trust in organizations will be increased to further improve the relationship quality between the individuals and system-related groups. Therefore, when individuals suggest that the system to which they belong is reliable, cares about them and supports them, they will exhibit good behavior and performance, and be more willing to actively share knowledge with other people.

Consequently, when facing peer competition, teacher encouragement, parental expectations, and pressure from future employment, students will look forward to their academic and future achievements. The academic performance of students represents their learning outcomes and educational effectiveness of the university. This study investigated the correlation among university students' self-concept, social support, academic achievements, and occupational choice intentions. The findings are expected to serve as a reference to future teaching-related studies.

According to Betz (1994), Super's theory of career development is the notion of self-concept. Self-concept is basically how individuals picture themselves (Super, 1957). The development of the career stage is the development and practice of self-concept. It is defined as “the constellation of self attributes considered by the individual to be vocationally relevant” (Super, 1963, p. 20). Super (1963) suggested that individuals attempt to implement their self-concept through career choices. Given the breadth of Super's construct (Betz, 1994), one's self-concept may also include beliefs about one's image, personal appearance, and physical attractiveness. Perceptions of one's image may influence beliefs about which occupations will allow for the implementation of the self-concept.

Super (1980) proposed the career development model, which emphasizes the continuity of career development. The career development of an individual is divided into five stages: growth, exploration, establishment, maintenance, and declination. Context-associated adaptive behaviors will be developed at each stage. The growth stage is the initial stage of career development, where individuals start to develop a self-concept through the recognition from and interactions with significant others, such as parents and friends. With the increase in age, individuals gradually take into account the meaning of interests and abilities through the actual participation in various events and the accumulation of experiences. The exploration stage includes adolescence and adulthood, and it covers the college period. Individuals explore themselves, roles, and careers through schools, work experiences and interpersonal interactions, in order to further develop a sense of preference for career and gradually realize their objectives. The establishment stage is the stage to confirm stability. After individuals find an appropriate career, they tend to become stabilized in the career, start to approve of it and seek for progress in it, in order to establish a professional status and increase the opportunity for promotion.

A consistent conclusion of the correlation between social support and occupational choice intention has not been reached in relevant studies. The amount of received social support (e.g., information/advice, encouragement, feedback from worksite supervisors, school staff, mentoring) during the school years is vital to students, as decisions concerning educational and career pursuits may appear daunting and confusing.

The career development theory proposed by Super (1994) provides a conceptual framework to investigate the process of human career development. According to the theory, the college period is the late period of the exploration stage of career development, and the main task is to increase self-perception through various exploratory activities to further clarify the direction of career development, establish specific career planning, develop self-concept and occupational concept, and prepare for entry into the job market. However, the abilities and personality traits required by each career are different, allowing individuals to engage in different careers and allowing people with different personalities to engage in the same career. During the college period, because students are planning to enter the job market, they will attach more importance to the challenges of the real society, and further intend to fulfill their individual self-concept, establish accurate occupational concepts, cultivate an accurate working attitude, and increase their specific understanding of the working world.

Method

The main objective of this study was to investigate the correlation among self-concept, social support, academic achievement and occupational choice intention, and to propose a hypothetical model where self-concept and social support are the independent variables, and occupational choice intention is the dependent variable. The model is expected to clarify the correlation among self-concept, social support, academic achievement, and occupational choice intention.

Research Framework and Hypotheses

Based on the research purposes and literature review, this study developed conceptual framework, as shown in Figure 1.

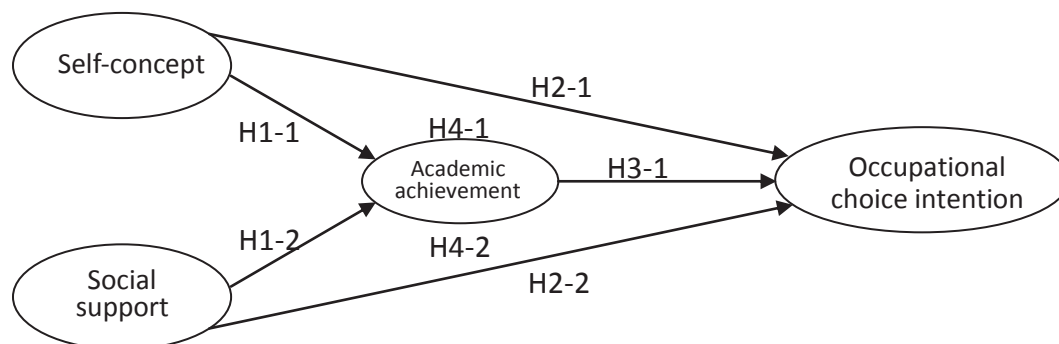


Fig. 1. Research framework

Based on the research purpose, literature review, and research framework, this study proposed the following hypotheses according to the relationships between the dimensions, and then conducted empirical research.

H 1: Self-concept and social support have a positive influence on academic achievement.

H 1-1: Self-concept has a positive influence on academic achievement.

H 1-2: Social support has a positive influence on academic achievement.

H 2: Self-concept and social support have a positive influence on occupational choice intention.

H 2-1: Self-concept has a positive influence on occupational choice intention.

H 2-2: Social support has a positive influence on occupational choice intention.

H 3: Academic achievement has a positive influence on occupational choice intention.

H 3-1: Academic achievement has a positive influence on occupational choice intention.

- H 4: Self-concept and social support affect occupational choice intention through the mediating influence of academic achievement.
- H 4-1: Self-concept has a positive influence on occupational choice intention through the mediating influence of academic achievement.
- H 4-2: Social support has a positive influence on occupational choice intention through the mediating influence of academic achievement.

Sample and Data Collection

The subjects of this study were junior and senior university students in Taiwan. This study used convenience sampling and selected schools as the sampling unit to select limited samples for statistical analyses. Junior and senior university students from the 2011 Spring Semester in 15 colleges across Taiwan were selected as the subjects for the questionnaire survey. A total of 1,500 questionnaires were distributed in May 2011, and 1,440 questionnaires were returned, with a return rate of 96%. After the questionnaires were encoded, there were 1,406 valid questionnaires, showing a valid return rate of 93%.

Data Analysis

This study selected junior and senior college students in Taiwan as the research population to conduct a questionnaire survey. A total of 1,406 valid questionnaires were returned. This study used the statistical package software SPSS for Windows 12.0 to analyze the demographic variables. The results of the descriptive statistics analysis are shown in Table 1. There are 621 male subjects (44.2%) and 785 female subjects (55.8%), suggesting that the proportion of female subjects is higher than that of the males. As for other demographic information, the proportion of general private universities or colleges is the highest (41.7%), and most of the students are junior college students (70.9%). Moreover, most of them are aged 21-22 (65.9%), have joined student clubs (64.4%), and have part-time working experiences (79.9%).

Path Analysis on the Overall Model of Self-concept, Social Support, Academic Achievement, and Occupational Choice Intention

This study explored whether self-concept and social support would affect academic achievement and occupational choice intention. Structural equation modeling (SEM) was used to perform analyses and test whether the goodness-of-fit between the hypothetical model and the collected data is acceptable. This study intended to establish a correlation model to understand whether self-concept and social support would affect academic achievement and occupational choice intention. Various indices were used to test the model's goodness-of-fit and investigate the cause-and-effect relationship among various potential variables.

SEM was used to test the overall model on its the goodness-of-fit between the theoretical hypotheses and the empirical data, and to further test the goodness-of-fit level. The indices for the overall goodness-of-fit assessment, the absolute goodness-of-fit statistics, the incremental goodness-of-fit statistics and the parsimony goodness-of-fit statistics were mainly used as the bases for measurement and assessment.

Table 1 is a summary of the goodness-of-fit indices for the overall model. The absolute goodness-of-fit statistics for the overall theoretical model were: $\chi^2 = 831.22$ ($p = .00$), GFI = 0.92, RMR = 0.03, and RMSEA = 0.08. The incremental goodness-of-fit statistics for the overall theoretical model were: AGFI = 0.89, NFI = 0.89, NNFI = 0.87, CFI = 0.90, RFI = 0.86, and IFI = 0.90. The parsimony goodness-of-fit statistics for the overall theoretical model were PNFI = 0.71 and PGFI = 0.72. The above indices showed that only the values of

χ^2 , AGFI, NFI, NNFI, and RFI failed to meet the standard, while the other seven indices all met the standard. The results met the requirement of majority rule as proposed by Huang (2007); namely, the model would be acceptable as long as at least half of the indices met the standard.

The results of the goodness-of-fit assessment showed that at least a half of the indices met the standard, suggesting that the goodness-of-fit between the overall hypothetical model (the model of self-concept, social support, academic achievement and occupational choice intention) and the empirical data was good. Therefore, there was no need to amend the model. Verification of the hypotheses for the SEM model, and the direct, indirect and total effects among the variables could therefore be investigated.

Table 1: Summary of the goodness-of-fit indices of the overall model

Assessment Items	Standard or threshold value of goodness-of-fit	Assessment result	Test of result
Test of absolute goodness-of-fit			
χ^2	Chi square value: the smaller the better ($P \geq \alpha$ value)	831.22 (P=0.00)	Unacceptable
χ^2 / df	Between 1~5	9.90	Unacceptable
GFI	> 0.8	0.92	Acceptable
RMR	At least < 0.1	0.03	Acceptable
RMSEA	< 0.05: good; 0.05~0.08: excellent	0.08	Acceptable
Test of incremental goodness-of-fit			
AGFI	> 0.9	0.89	Unacceptable
NFI	> 0.9	0.89	Unacceptable
NNFI	> 0.9	0.87	Unacceptable
CFI	> 0.9	0.90	Acceptable
RFI	> 0.9, 0.95 perfect goodness-of-fit	0.86	Unacceptable
IFI	> 0.9	0.90	Acceptable
Test of parsimony goodness-of-fit			
PNFI	> 0.5	0.71	Acceptable
PGFI	> 0.5	0.72	Acceptable

Verification of the SEM Hypotheses

The analysis was performed using the statistical package software Amos 17.0, and the results are shown in Tables 2 and 3. Figure 2 is a diagram of the overall path of self-concept, social support, academic achievement, and occupational choice intention. The subjects in this study were divided into the two groups of high academic achievement and low academic achievement, according to their academic performance.

Table 2: Comparison of the research hypotheses and the empirical results

Research Hypothesis	Relationship	Parameter estimation	t value	Result
H1-1: Self-concept has a positive and direct effect on academic achievement.	—	-0.47	-2.49*	Not supported
H1-2: Social support has a positive and direct effect on academic achievement.	+	0.73	3.81*	Supported
H2-1: Self-concept has a direct and positive effect on occupational choice intention.	+	0.34	2.27*	Supported
H2-2: Social support has a positive and direct effect on occupational choice intention.	+	0.19	1.25	Not supported
H3-1: Academic achievement has a positive and direct effect on occupational choice intention.	+	0.03	0.82	Not supported

* $p < 0.05$

- H 4-1: *Self-concept positively affects occupational choice intention through the mediating effect of academic achievement.* The result showed that $Z = -0.64 < 1.96$ ($p > 0.05$) and was not statistically significant. Therefore, the research hypothesis of path H4-1 was not supported.
- H 4-2: *Social support positively affects occupational choice intention through the mediating effect of academic achievement.* The result showed that $Z = 0.66 < 1.96$ ($p > 0.05$) and was not statistically significant. Therefore, the research hypothesis path H 4-2 was not supported.

Table 3: Summary of the Sobel Test

Path	a	b	Sa	Sb	Test of Statistics (Z)	Hypothesis
H4-1: Self-concept →academic achievement →occupational choice intention	-1.01	0.41	0.02	0.03	-0.64	Not supported
H4-2: Social support→academic achievement →occupational choice intention	1.19	0.31	0.02	0.03	0.66	Not supported

Note: a is the unstandardized path coefficient between the independent variable and the mediating variable; b is the standard error between the mediating variable and the dependent variable; Sa is the standard error of unstandardized path coefficient a; and Sb is the standard error of unstandardized path coefficient b.

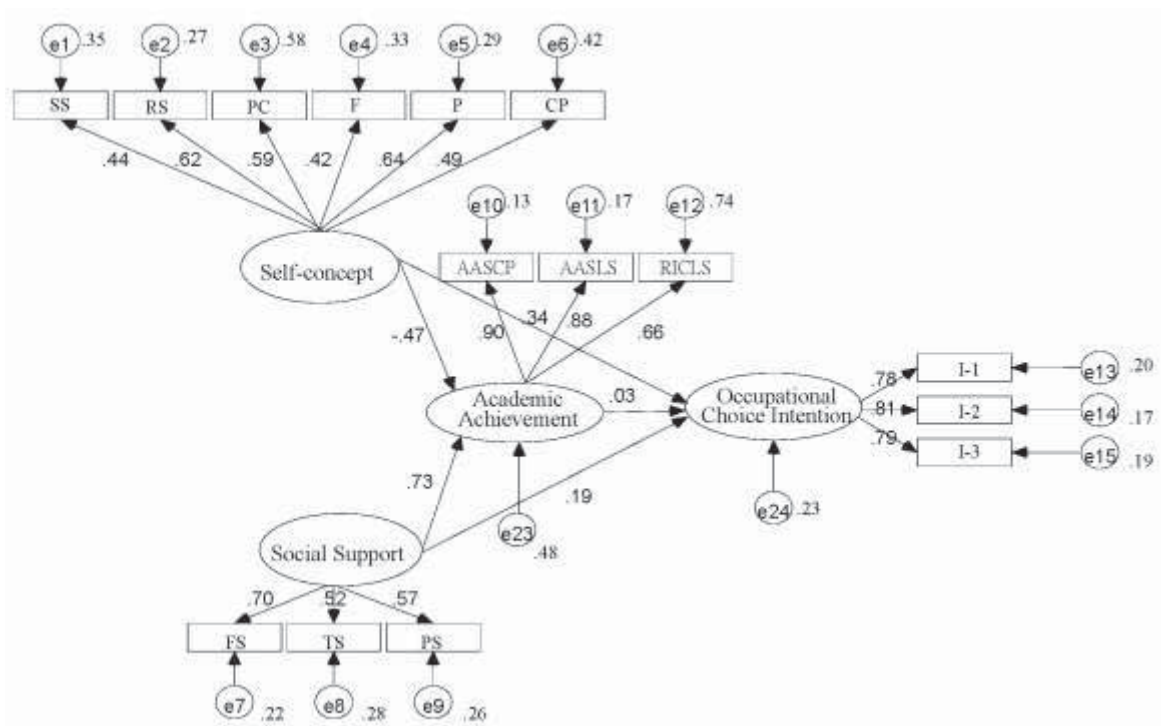


Fig. 2. Overall model of self-concept, social support, academic achievement, and occupational choice intention and path diagram of standardized parameters and correlation

The research results showed that among the five paths of the overall path structure model of self-concept, social support, academic achievement and occupational choice intention, the research hypotheses of H1-2 and H2-1 were supported, while those of H1-1, H2-2, and H3-1 were not supported. The research hypotheses of H4-1, and H4-2 were also not supported.

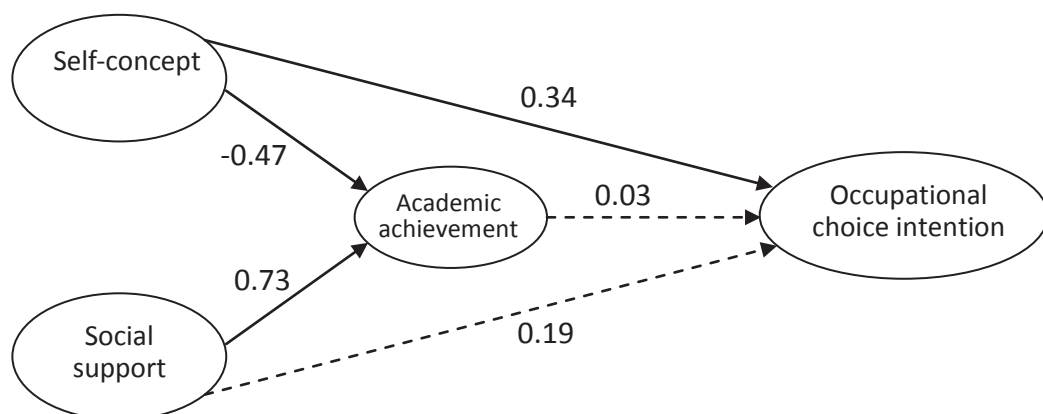


Fig. 3. Path diagram of self-concept, social support, academic achievement and occupational choice intention

Conclusion and Discussion

Based on the statistical analysis on the overall model, the following conclusions are proposed. There is a significantly negative relationship between the self-concept and academic performance of college students. Based on literature review, in terms of students' individual factors, some scholars suggested that stronger self-concept and self-esteem of students lead to

better academic performance (Ko1sa, 1989; Melnick, 1992). Based on the above, students' self-concept is a factor affecting their academic performance; however, this study also found a significantly negative relationship between students' self-concept and academic performance. An inferred result is that there are many college students that do not care about academic performance; and some students suggested that self-concept and academic performance are not important, which may explain why self-concept has a significantly negative effect on academic performance.

Social support has a positive effect on college students' academic performance. Among the factors of social support, the importance of support from peers is the highest, followed by the support from parents. William and Kristan (2006) indicated that peers are very important resources of social support. The social capital of peer network involves the establishment of mutual habits and influence. Good peer interactions can allow students to help each other solving academic problems, and even entering colleges. Brooks (2007) found that during the stage of college education, college students are strongly influenced by peer relationships in the aspects of academic performance and extracurricular activities. This study found that friendships with peers could provide college students with mutual emotional support. In addition, experiences other than academic activities would affect students' college education. Therefore, it is necessary to provide college students with adequate encouragement and support.

Self-concept has a positive effect on occupational choice intention. Previous studies have seldom investigated the influence of self-concept on occupational choice intention. However, this study verified that the basic cognition of students' self-concept is preliminarily developed at the college stage. As a result, it is reasonable that self-concept has an effect on the short-term occupational choice intention of college graduates. Therefore, college education should cultivate students' professional workplace competence in a timely manner in order to ensure that they can select appropriate directions for career choices.

In terms of research contents, this study simply investigated students' self-concept, social support, academic performance, and occupational choice intention. Therefore, the explanatory power of the overall self-concept, and its aspects regarding occupational choice intention, were not high, suggesting that many affecting factors remain to be investigated. Moreover, this study presumed that because self-concept covers various aspects, its effect on occupational choice intention may be lower. If the relationships between various aspects and occupational choice intentions are investigated, the explanatory power of occupational choice intention may be higher, which could be explored in future studies.

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Management

Room 607 9:00-10:30, March 16

208

Exploring the Relationship between Authentic Leadership and Positive Psychological Capital: the Moderating Chinese Employees' Achievement Motivation

Pei - Hsuan Lin | *Yuan Ze university*

Yueh - Ysen Lin | *Yuan Ze university*

228

Effects of Team Epistemic Motivation and Perceived Stress in Teams - The Moderating Effect in Team Information Sharing

Po Chin Liu | *Yuan Ze university*

Yueh-Ysen Lin | *Yuan Ze university*

174

Improvement of Patient Safety with Utilizing Surgical Patient Safety Checklist

Hui-Chuan Yang | *Changhua Christian Hospital*

Hui-Min Yen | *Changhua Christian Hospital*

Alan Ronald Talbot | *Changhua Christian Hospital*

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Exploring the Relationship between Authentic Leadership and Positive Psychological Capital: the Moderating Effect of the Chinese Achievement Motivation

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ABSTRACT

Positive psychological capitals have been considered as a critical factor individuals to cope with the stress in the workplace nowadays. Given its developable nature (Luthans, 2002), more and more researchers and managers eager to know ways to enhance employees' positive psychological capitals. Previous studies found that authentic leadership is positively related to followers' positive psychological capitals since leaders of this kind usually demonstrate positive psychological capitals and form unconditional trust with followers (Luthans & Avolio, 2003; Ilies et al., 2005). As an exemplary leadership, authentic leadership exerts its influence through indirect mechanism. That is, followers consider these leaders as their role models and are willing to be influenced by the leaders' attributes and behavior (Avolio & Gardner, 2005). In other words, whether authentic leadership can affect followers' positive psychological capitals or not depends on followers' personal motivation and willingness.

This paper argues that an individual's motivation might be considered as a moderator to affect the relationship between authentic leadership and followers' positive psychological capitals. Two kinds of motivational orientation were discussed: individual-orientated achievement motivation (IOAM) and social-orientated achievement motivation (SOAM) (Yu & Yang, 1980). In the Chinese society, individuals with high social-oriented achievement motivation rely more on the assistance of others and care about whether their behavior meet others' expectation. As a result, this paper argues that SOAM will strengthen the relationship between authentic leadership and followers' positive psychological capitals. On the other hand, employees with high individual-oriented achievement care less about others expectation and tend work at their own pace in order to fulfill personal achievement. Therefore, individual-orientated achievement motivation will weaken the positive relationship between authentic leadership and followers' positive psychological capitals.

Keywords: Authentic Leadership, Positive Psychology Capital, Achievement Motivation

Effects of Team Epistemic Motivation and Perceived Stress in Teams - The Moderating Effect in Team Information Sharing

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ABSTRACT

Epistemic motivation, proposed by Kruglanski and Mayseless(1988), refers to human beings' motive to seek understanding of the situation and acquire knowledge. Since then, research on epistemic motivation has been focused on individuals' intrinsic motivation for information acquisition and processing. Later, van Kleef (2004) proposed that epistemic motivation is relevant to individual emotion and redefined this construct as the personal motivation to understand other's emotion behind one's verbal expression. Van Kleef et al. (2009) then applied this construct to the team setting. They divided teams according to the aggregate epistemic motivation scores and found that teams with high epistemic motivation show better performance when facing angry supervisors than teams with low epistemic motivation.

Van Kleef et al. (2009) argued that teams with high epistemic motivation are more cautious about supervisors' emotion and exert effort to understand the reason behind the emotion. By doing so, they are more likely to work harder to avoid further blame. As a result, these teams show better performance. However, when the team members continuously stay in such an alert state to "guess" the meaning of supervisors' emotion, they put themselves in a stressful situation which is very likely to lead to exhaustion. This might negatively affect team performance. In this paper, a conceptual framework is proposed and argues that team's epistemic motivation is positively correlated with team members' perceived stress. Yet within-team information sharing (Nijstad et al., 2006) can moderate the relationship between epistemic motivation and members' stress level. When the members are willing to share information with other members, the whole team will be able to understand the uncertain situations and supervisors' emotion. As a result, members can conserve their cognitive energy by reducing the action of "guessing" and stress level will be lower accordingly.

Keywords: Teamwork, Epistemic Motivation, Perceived Stress, Information Sharing

Improvement of Patient Safety with Utilizing Surgical Patient Safety Checklist

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ABSTRACT

According to statistics released by the World Health Organization, nearly half of surgical adverse events are preventable. However, 11 surgery-related incidents were still documented in the incident reports between 2007 and 2010 at our hospital. These incidents were caused by errors in pathology reports, surgical sites, equipment preparation, and medication. In collaboration with the department of anesthesiology and medical quality assurance team, the operating room (OR) referenced the surgical checklists from the World Health Organisation to re-examine the existing safety procedures for the OR patients and devised a surgical patient safety checklist. The items of the checklist include performing patient identification, reviewing surgical safety procedures, improving anesthetic care, testing surgical instruments and many more. In parallel with the implementation of the checklist, the teams also shot video clips to educate the staff about the newly developed process. To measure the effectiveness of this endeavour on safety, the operating room monitored the progress at regular intervals. Since the start of the project in August of 2010, the operating room executed on average 2700 surgeries per month. The execution rate of the surgical patient safety checklist has reached 80%; the documentation rate of the principal doctors in the OR (for signing in, time out, important moments during the surgical procedures, and sign out) has reached 100%; the number of surgery-related incidents in 2011 and 2012 had been reduced to 0.

Keywords: surgical patient safety, surgery checklist

1 INTRODUCTION

According to the estimation of the World Health Organization, 234 million people undergo major surgery annually. Studies have shown that in the developed countries, the rate of severe surgical complications is between 3% to 22%, and the mortality rate is between 0.4% to 0.8%. However, nearly half of the adverse events are preventable. The causes for these incidents were not due to the carelessness or incompetency of the surgeons. They happen because there are many steps in a complex procedure, which increased the possibility for

error.

1.1 Analysis

Since 2005, our hospital has implemented a slogan (3 confirmation 5 review) to promote the steps in surgical patient identification. However, based on the accident reports between 2007 and 2010, there are still 11 surgery-related events. These incidents were caused by errors in pathology reports, surgical sites, equipment preparation, and medication.

1.2 Methods

In collaboration with the department of anesthesiology and medical quality assurance team, the operating room (OR) referenced the surgical checklists from the World Health Organisation to re-examine the existing safety procedures for the OR patients. The team devised a surgical patient safety checklist and executed the safety surgical strategies based on the timing of the patients when they arrive at the preparation room, sign in, time out, and sign out. The items of the checklist include performing patient identification, reviewing surgical safety procedures, improving anesthetic care, testing surgical instruments and many more. The review council of the medical assurance division and the management team of the operating room jointly headed the planning and moderation of this endeavour while the medical quality assurance team, operating room, and the department of anesthesiology developed the video clips for educating the staff regarding the steps in this new surgical patient safety checklist to reduce the rate of surgery related errors. Finally, the operating room monitored the progress on a weekly basis to measure the effectiveness of this new procedure.



Fig. 1: explaining the surgical procedures and locations prior to the surgery



Fig. 2: before the commencement of the surgery, the operating team performed a time out to confirm the steps according to the surgical patient safety checklist

4. SUBMISSION AND PROOFREADING

Since the start of the project in August of 2010, the operating room executed on average 2700 surgeries per month. The execution rate of the surgical patient safety checklist has reached 80%; the documentation rate of the principal doctors in the OR (for signing in, time out, important moments during the surgical procedures, and sign out) has reached 100%; the rate of self initiated participation of the attending is 81%; the number of surgery-related incidents in 2011 and 2012 had been reduced to 0.

Ensuring the safety of surgical patients is a common goal for the operating teams and every step of the process is closely connected. With constant communication and confirmations, the teams can better collaborate in achieving better patient safety.

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Psychology

Room 607 9:00-10:30, March16

183

The Effect of Stressful Life Events on the Mental Health Of Secondary Vocational Students In China: The Main, Moderating And Mediating Role of Social Support

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The effect of stressful life events on the mental health of secondary vocational students in China: the main, moderating and mediating role of social support

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ABSTRACT

Anchoring in the resilience theory, this study aims at identifying the impacts of stressful life events from different aspects (family and parents, relationship, school and classes, and friends and social activities) on the mental health status of secondary vocational students and examining the main, moderating and mediating effects of each source of social support (parental support, peer support and teacher support) on mental health of this group of adolescents in response to stressful life events. 335 students from two secondary vocational schools were recruited through availability sampling. 67% of the students were boys and 33% were girls. The *Adolescent Life Events Questionnaire (ALEQ)*, the *Social Support Appraisal Scale (APP)* and the *Positive and Negative Affect for Children (PANA-C)* were employed in this study to measure independent and dependent variables. Results indicated that the top 3 stressful life events that happened most frequently among secondary vocational school students were all revolved around school and classes. They are “got a bad report”, “have to attend a class that they don’t like” and “did poorly on, or failed, a test or class project”. Gender differences revealed in terms of types of stressful life events. Girls reported more stressful events from the area of family and parents as well as the area of friends and social activity than boys. What is interesting is that stressful life events from family and parents as well as from school and classes did not significantly predict mental health. Regarding social support from distinct providers, all the main effects were confirmed. However, only peer support moderated and mediated the relationship between stressful life events and mental health, though parental support and teacher support acted as mediators. Both theoretical and practical implications will be discussed.

KEYWORD: mental health, social support, vocational school students, adolescents, stressful life events

Society

Room 607 9:00-10:30, March 16

224

Research on Corporate Social Responsibility in China

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Research on Corporate Social Responsibility in China

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ABSTRACT

Chinese enterprises have undertaken social responsibility to different degrees and in different ways in various eras of planned economy, reform and opening up, economic globalization and financial crisis. Both of the cultural traditions and economic situation affect social responsibility of Chinese enterprises. On one hand, China possesses extensive and profound cultural tradition, the most influential of which are Confucianism, Buddhism and Taoism. On the other hand, China is the poster child of emerging market economies in the transitional period. In order to enhance the ability of Chinese corporations to take corporate social responsibility, it is significant to develop low-carbon economy, formulate appropriate corporate social responsibility standards for China and foster socially responsible investment.

Key Words: Corporate Social Responsibility; Traditional Culture; Economic Transition; Emerging Market Economies

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1. The overview of corporate social responsibility in China

Since the 1970s, the belief that companies should undertake corporate social responsibility has been accepted gradually and generally. A business is a social organization, and it should be responsible for all the stakeholders including stockholders.

At the end of 20th century, with economic globalization and concerns such as global warming, human rights and poverty, corporate social responsibility has been a vital worldwide issue researched widely and deeply as well as a crucial element of competitiveness of enterprises. Howard. R. Bowen (1953) set forth an initial definition of the social responsibilities of businessmen, "It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society." ^[1] In 1991, Carroll promoted "The pyramid of corporate social responsibility", which suggests that four kinds of social responsibilities constitute total CSR: economic, legal, ethical, and philanthropic. ^[2] In 1997, Elkington coined an initial phrase "The triple bottom line", which consists of three Ps: profit, people and planet. It aims to measure

the financial, social and environmental performance of the corporation over a period of time. Only a company that produces a TBL is taking account of the full cost involved in doing business.^[3]

In the age of planned economy in China, the model of state-owned enterprises running society did promote full and stable employment as well as protect the lawful rights and interests of workers, which is still one of the core contents of the modern corporate social responsibility. But it is far from the true CSR. On one hand, state-owned enterprises, which were not in charge of governing, interfered in its business. They undertook a large number of accountabilities which should have been born by government or society, arranging almost all the necessary activities of the employees and their families. Consequently, a state-owned enterprise was not only a production and operation entity, but also a small well equipped and fully functional community. It allocated schools, hospitals, shops, nurseries, police and so on. It seems that it provided its employees with a whole welfare package from cradle to grave. It is said that the number of schools and hospital beds the state-owned enterprises possessed once accounted for one-third of the total the urban area had. On the other hand, state-owned enterprises, which were in charge of governing, did not care its business. They enjoyed poor autonomy, bore heavy social burden, run inefficiently, paid too much attention to social responsibility and ignored economic responsibility. Therefore, it is a mirage for them to become a real sense of enterprises. People's understanding of social responsibility was incomplete, they only focused on improving employee benefits, but often misappropriated state assets and damaged the environment.

Since the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China held in 1978, China has been implementing reform and opening up policy. As a result, economic and social transition has been developing gradually. In this period, a number of laws and regulations were enforced to standardize business behavior, for instance "The Environmental Protection Act" in 1989, "Product Quality Law" in 1993, "The Consumer Protection Act" in 1994, etc. Then corporate social responsibility began to attract the public's attention. At the beginning of reform and opening up, an important part of the Reform of State-owned Enterprises was to reduce the burden on enterprises, expand the autonomy of them, make a turnaround as well as enhance the vitality of firms. To some extent, corporations returned some social responsibility out of reach to the government and society. However, due to the absence of corporate governance structure in state-owned enterprises, managers, who were in charge of the business actually, adopted various means to seek their own interests and did serious damage to corporate social responsibility. It is common that state-owned enterprises evaded taxes, cooked books and misappropriated state assets. They made declining profits and even went bankrupt, leaving extensive unemployment. It is alarming to see the environmental pollution and waste of non-renewable resources. The status of private corporations was also not optimistic. Without the preferential policies of raw materials, taxation and market access, they had to pay more attention to surviving and pursuing profit maximization. As a result, fake and shoddy goods, tax evasion, deduction of wages together with serious safety accidents were not uncommon in private ventures.

Since China joining the WTO in 2001 and economic globalization going on, the awareness of corporate social responsibility has been steadily increasing. In September 2006, the Shenzhen Stock Exchange issued "The Guidance on social responsibility of

listed corporations in Shenzhen Stock Exchange" to encourage listed companies to disclose CSR report voluntarily. At the Central Economic Work Conference in 2007, Hu Jintao explicitly proposed the strategic requirements of guiding enterprises to establish modern management concept and undertake social responsibility. In early 2008, the SASAC (State-owned Assets Supervision and Administration Commission of the State Council) issued "The Guidance on social responsibility of central state-owned enterprises". As a result, the number of CSR reports in China has continued to grow. In March 2006, the State Grid issued the first CSR report of central businesses. In February 2007, Xizi UHC released the first CSR report of private corporations. From 2001 to 2004, there were only a few CSR reports disclosed in China each year. Encouragingly, the number rocketed to 626 in 2009. Nevertheless, the achievements of quantity cannot hide the weaknesses of quality. The overall performance of CSR reporting practices in China is low as about half of the reports are still in their infancy. Firstly, the reports are characterized by inadequate disclosure in depth and breadth. Secondly, they have low coverage and internationalization level of reported indicators. Finally, there is a certain gap in responding to stakeholders' requirements and expectation along with embodying the corporate value.

In 2007, the System of Chinese Entrepreneurs Survey issued a report entitled "Enterprisers' Recognition of Enterprises' Social Responsibilities and the Evaluation thereof". The report is based on Carroll's theory of The Pyramid of Corporate Social Responsibility, and there are 4586 managers participating in the survey. It displays that managers involved generally agree that excellent entrepreneurs are supposed to have a strong sense of social responsibility and underline the significance of fulfilling the economic, legal, ethical, and philanthropic responsibility. However, the study also shows that there are some concerns and misunderstandings on CSR among many business operators. 69.7% of them are quite concerned about the cost of fulfilling social responsibility; 40.8% of them insist that it is possible for firms to undertake social responsibility only when they have reached a certain level of development; 23.3% of them believe that social responsibility is out of their fundamental responsibilities. They also raise the main behaviors of lacking CSR. Polluting the environment ranks the first. The runner-up is dishonesty, such as tax evasion, default payment, releasing false advertisements, along with manufacturing and selling fake and shoddy product. It is followed by harming the interests of stakeholders, for instance making unfair competition as well as ignoring the safety and health of employees. Absence of charitable activities is also a significant segment. ^[4]

The financial crisis swept the world in 2008. Since 2009, Chinese Academy of Social Sciences (CASS) has released three reports entitled "Research Report on Corporate Social Responsibility of China(2009/2010/2011)". The reports are based on the theory of Triple Bottom Line, combined with Chinese national conditions. The report evaluates the annual social responsibility performance of the top 100 state-owned enterprises, top 100 private firms and top 100 foreign-owned ventures in China in the aspects of responsibility management, economic responsibility, social responsibility and environmental responsibility. It aims to analyze the characteristics of CSR in certain period in China.

The reports note that the overall performance of corporate social responsibility in China has been improving steadily from 2009 to 2011. Nevertheless, the overall level of CSR in China is still in its infancy by 2011, approximately 70% of the firms

involved are short of CSR extremely, and even 26 companies get a zero or negative score.^[5] The features of CSR in China at this stage are as follows. To start with, responsibility management lags behind the practices, with few enterprises establishing CSR leadership or a specific department of CSR. It is difficult to find a CSR report free of impression management as ventures tend to report merits rather than demerits, especially when the CSR report is disclosed voluntarily without apposite auditing. Secondly, economic responsibility behaves better than social responsibility and environmental responsibility since economic responsibility is the primate responsibility of businesses and survival comes first with the background of financial crisis. But even economic responsibility is far from perfect. Thirdly, the responsibility of enterprises to employees is fairly not promising. China is known to be very rich in human resources, but Chinese employees work in pretty complex conditions, such as heavy pressure, frequent overtime, fictitious paid holidays and even frequent safety accidents. Last but not least, environmental responsibility ranks last. In addition to inadequate focus from businesses and poor disclosure of information, the rapidly growing content of environmental responsibility and sharply emerging environmental indicators also contribute to the increasing difficulties of environment management. The slogan of energy conservation and emission reduction has been proposed for several years, but few companies can put it into practice. Only a few pioneering firms have set forth in the emerging field, for instance, Kweichow Moutai has achieved national discharge standards, China Southern Power Grid has fully implemented the policy of energy conservation and emission reduction and BASF has reported its carbon footprints.

The reports also point out that the performance differs significantly from one sector to another. In 2010, the sector of power supply was in the leading stage (73.0 points), power production, communication services and banking were catching up with the leader, and 7 industries were in their infancy. Noticeably, the vast majority of manufacturing sectors are bystanders, such as the production of daily chemicals, whereas there is a gradual increase in the level of social responsibility in services, such as banking. Apart from this, the ownership of a business also has a considerable influence on the results. In general, state-owned enterprises take the leader, among which central corporations are the pioneers. China Southern Power Grid has been vigorously promoting the project of power generation in an energy conservation way since 2008. The achievement is encouraging, and by the end of 2010, 7 million tons of standard coal has been saved. Comparatively speaking, private firms move slowly in CSR, but there also exist a couple of outstanding ones. In 2009, Legend Holdings Ltd. got 70.5 points, ranked 7th and issued "The White Book of Social Responsibility". It seems that multinational corporations are absolutely the pioneers of CSR while foreign-funded enterprises in China behave badly depressingly. Admittedly, a lot of foreign companies have brought advanced philosophy and sophisticated practical experience of CSR to China, for instance, Estee Lauder has been promoting Breast Cancer Awareness Campaign. However, at the end of 2011, the event of smashing refrigerator by Luo Yonghao, the founder of Bullog, is a huge blow to Siemens. At the same time, it rouses public's awareness of examining the social responsibility of foreign brands. Objectively speaking, no matter how large the company is, how celebrated the brand is, or how splendid the product is, it is hard to ensure zero defect. What really matters is the attitudes towards facing the quality problem. Chinese customers just cannot accept the neglect, arrogance, shifting responsibility and double standards from foreign brands coping with public relations in crisis.

2. The consciousness of corporate social responsibility affected by Chinese cultural traditions

China possesses glorious history of five thousand years and profound cultural traditions, the most influential of which are Confucianism, Buddhism and Taoism. Confucianism is the mainstream of Chinese culture. Confucian Merchant is a permanent pursuit of Chinese businessmen in all ages.

Mencius said, "Benevolent people love others and polite people respect others. People who love others can obtain constant love and people who respect others can obtain constant honor." The Confucianists have been trying to create harmonious interpersonal relationships in a benevolent way so that superiors and subordinates can understand each other positively and colleagues can coordinate and cooperate better. The Soft Management focuses on honoring people and caring for life, which is bond up with Confucian ethical outlook of Humanism. Matsushita once said that we have to won great popular support with benevolence if we want to run business smoothly. Confucius said, "Treat others as you want to be treated." It reflects the philosophy of putting oneself in other's shoes and the concept of People-oriented.

Confucius said, "Angles cherish morality while devils pursue interests." The question of morality or interests is how to make and distribute money and it is a fundamental economic ethical issue, which exists in any management styles anytime and anywhere and restricts the operation objectives and management strategies. If an enterprise can take public benefits into consideration, which is morality as Confucius called, it can hold the cornerstone of long-term development. Although there is serious price contradiction in crude oil and refined oil with the financial crisis, Petro China Company Limited has not cut down production. Instead, it runs at full capacity to ensure a constant and steady supply of oil, leaving a loss of more than ¥12 billion. It is worthwhile, though, since supporting economic and social development is the primary and incumbent social responsibility of state-owned enterprises.

Ji Xianlin supposes that the theory of combining nature with man encourages people to live in peace with nature without discussing conquering or being conquered. The concepts of Green Community and Low-carbon Society currently advocated at home and abroad also reflect the theory of combining nature with man and developing sustainable society. Developing low-carbon economy is crucial to the sustainable social and economic development. CDB (China Development Bank) enthusiastically pushed ahead with low-carbon finance. CDB became China's first commercial bank to offer advisory services on carbon-emission trading in November 2009. By the end of 2009, CDB had provided advisory services for six CDM projects including the Ningxia Taiyangshan Wind Power Project (Phase II) and the Hubei Anlu Biomass project. In three of them, CDB brokered carbon credit trading agreements and helped clients cumulatively reduce the emission of 3.833 million tons of carbon-dioxide equivalent. Buddhism is the first foreign religion integrated into the ancient Chinese society and also the first foreign culture combined with the traditional Chinese culture. It is still fairly vibrant after spread in China for more than two thousand years.

Buddhism advocates compassion. As a major religion in China, it can naturally encourage people to be generous rather than evil. In ancient China, wealthy Buddhist often helped the poor, such as distributed food, supported infrastructure and aided

education. In recent years, many companies have joined the ranks of charity, especially when any disaster occurs. Buddhism suggests that what goes around comes around. Firms have to pay for its absence of social responsibility once exposed.

The highest level of management is to govern by doing nothing that goes against nature, which is promoted by Lao-tzu. He believed that "Tao", which is the source of the universe, is always inactive but leaves nothing undone. He also supposed that human follows land, land follows sky, sky follows Taoism, and Taoism follows nature. Therefore, only when companies are in line with the laws of market, society and nature, can they run in long-term. "Inactive" and "active" are relative. Corporations should promote social responsibility to a strategic level and propose the belief of social responsibility. Social responsibility cannot only be a slogan, but also need delivering to the staff, combining with corporate culture and values and integrating into the whole procedures. Once senior managers have established responsible values actively, they can wait for the harvest inactively. For example, in 2010, Sinopec Group enhanced its CSR management with "Making Every Drop Count" as the theme.

Confucianism speaks more highly of morality than interests while Taoism acknowledges the importance of interests to the country as well as cherishes morality. Taoism suggests that a firm should be responsible to the public at large rather than private interests of its managers.

Lao-tzu had a very high evaluation of water. First of all, water is the most unselfish since it benefits everything without evoking conflicts or resistance. Secondly, water can conquer the unyielding with the yielding. In addition, water can adjust to changing circumstances timely. An enterprise, as a social citizen, should voluntarily fulfill its social responsibility without apparent or short-sighted purposes. Companies should enhance the construction of intangible assets such as culture and values to deal with various risks by soft power. With social development, the content of CSR has being enriched constantly and companies should keep pace with the times. "Aluminum Corporation of China Limited (CHALCO) CSR Report 2010" is the first CSR report in accordance with the latest ISO26000 system in China, which indicates that only by following the international pace, can a firm deal with trade barriers effectively.

Lao-tzu believed that misfortune generates happiness, and happiness breeds misfortune. Huawei, a leading global ICT solutions provider, has formed a tradition called "mattress culture" since 1988. In the office, almost every engineer has a mattress. If they are tired when working overtime, they just rest for a while on the mattress and continue fighting after waking up. "Mattress culture" helped Huawei live through a difficult establishing period. But in 2008, two employees in Huawei jumped to their dead within 10 days. There is too much competition in its corporate culture for the staff to bear.

3. The impact of economic transition on corporate social responsibility in China

After 30 years of reform and opening up, China has succeeded in establishing a basic economic system dominated by public ownership and promoted by diverse forms of ownership and changing from planned economy into market economy. The world is shocked by China's economic growth, which is one of the emerging market economies. However, economic transition inevitably generates both positive and negative effects

on the awareness of corporate social responsibility in China.

In first decade of the 21st century, China's economic growth rate reached over 10%, far higher than the average one of 2.6% in developed countries and the global average of 4.1%.^[6] With China's growing economy and rising contribution to the world, the dependence on developed economies has gradually reduced. China has become one of the world's top 3 attractive investment countries and ranked as the second largest economy in the world. Furthermore, per capita GDP of China has exceeded 4,000 U.S. dollars. Therefore China has entered into a typical middle-income country. China's rapid economic growth brings a broad space for development to enterprises. Once the companies' strength has increased, they are more able and willing to fulfill their social responsibilities.

China has relied heavily on cheap resources and labors as an advantage for many years. As a result, the export-GDP ratio is relatively high, and China has enjoyed long-term trade surplus. China's coastal areas have become the world's plant and the center of labor-intensive manufacturing. It is amazing that 60% of shirts, 50% of cameras, 35% of televisions in the world are made in China. By the end of 2009, China's foreign exchange reserves have reached 2.399 trillion U.S. dollars, accounting for 30.7% of global reserves. When Chinese enterprises engage in international trade, they are forced to comply with various international standards. It is not only pressure but also motivation, thus, the sense of Chinese enterprises' social responsibility has reached a higher level.

As a rising emerging economy, China's position and role in the world have continued to be in the highlight in recent decades. Encouragingly, China has acquired greater international say. The G20 Summit in Washington at the end of 2008 and the G20 Conference in Pittsburgh in September 2009 indicated that the G20 including China and other emerging economies have officially replaced the G8 consisting of developed countries, and have become the primary platform affecting the world's economic development as well as the framework of international economic cooperation in the future.^[7] ISO has launched the ISO26000 project since 2004. More than 400 experts from over 90 countries have participated in it, including six Chinese representatives. They fully described the actual situation and needs of developing countries in order to enable developing countries and emerging market economies to fulfill social responsibility within their reach.

The period of 12th five-year (2011-2015) plan is crucial to not only building a Moderately Prosperous Society in an all-round way, but also deepening the Reform and Opening Up and accelerating the transformation of economic development pattern. At the crossroad of transition, the biggest problem of China is how to avoid the "Middle Income Trap" and achieve the second restructuring of economic development pattern, from middle-income country to high-income one.^[8] The first successful transformation, which is known as changing from planned economy into market economy, also caused some unbalanced, uncoordinated and unsustainable problems. The solution to these problems is critical to the success of China's second economic transition.

Consumption is the ultimate demand and the fundamental endogenous dynamics of economic growth. For a long time, China's economic growth mainly depends on

investment and exports, while consumption, especially household consumption becomes the Achilles heel of economic development. In China, individual consumption merely accounts for approximately 36% of GDP, ranking last in all the major economies around the world and second to last in the G20, whereas the average of Asian countries is around 50%. It barely reaches half of the amount in United States and two-thirds of the one in Europe and Japan. In the past 20 years, the proportion of China's consumption in GDP has fallen by nearly 15%, and this phenomenon will continue to worsen after the global financial crisis.^[9]

China has relied heavily on its demographic dividend and ignored innovation. Consequently, Chinese enterprises are always in the lower end of the global industrial and value chain. The export products from China lack added value, proprietary intellectual property rights and anti-risk capability. With the global financial crisis, the demand of products and services imported from China has been contracting obviously in the world, especially in developed countries. In 2011, the growth speed of China's import and export was from high to low. It hit an all-time low in December. Both of import and export sank to a 2-year low. The annual trade surplus narrowed to \$155.14 billion further and hit record lows since 2006. It was the third year that China's annual trade surplus descended continuously. It is predicted that the trade surplus will continue to decline in 2012. This grave situation will lead to rising unemployment rate, shrinking value of shareholders, increasing risk of creditors, and decreasing tax.

For a long time, China has formed an extensive economic development pattern of high consumption, high emission and low added-value. China is accustomed to the mode of treatment after pollution, thus, the pressure on resources and environment is rapidly increasing. It is accustomed to 'solution after pollution' or 'solution while pollution'. China is well known as a county with vast territory and abundant resources. But considering the huge population base, China is also a barren country, while the mode of economic growth is absolutely extensive. China's energy consumption of per \$100 of GDP is 11 times of Japan's, 9.6 times of United States', and even 2.6 times of India's. In the meantime, China is facing embarrassment of high-carbon consumption and low emissions. In 2009, global carbon trading reached \$144 billion, of which the European Union had \$118 billion, accounting for 82%. Depressingly, China's share of it was less than 1%, and China's carbon emission ranked first in the world in 2009. So it is not difficult to understand why Chinese enterprises' environmental responsibility lags behind social responsibility and economic responsibility on the whole.

In the recent 20 years, the income gap between urban and rural residents in China has gradually expanded. Although there was a slight decline from 3.23:1 in 2010 to 3.13:1 in 2011, the chasm is still deep. At present, China has entered the middle or late stage of industrialization, and the level of urbanization has reached 47.5%. Compared with the urbanization level of over 60% the developed countries had in the period of similar industrialization level, there is still a gap in urbanization. In China, a number of surplus rural labor enter urban region. Although they have realized regional transfer and career transitions, they have not achieved identity and status change. The cities are so mean that they only receive but not give. The enterprises employ surplus rural labor without supplying any welfare or benefits. The migrant workers are faced with high housing prices, medical expenses and children's education costs in the amphibious lifestyle. So, how to protect the legitimate rights and interests of migrant workers has become a tougher problem of CSR in China in recent years.

In China, services have lagged behind manufacturing for a long term. In the past decade, the proportion of services output accounting for GDP has remained at about 40%, which is far lower than the one in United States and other developed countries. It even falls behind many developing countries with similar average per capita income. Compared with modern services, traditional manufacturing assembles less knowledge, consumes more resources, and causes heavier pollution. Furthermore, it is more difficult for manufacturing firms to accept the new concept of CSR, dragging the whole development of CSR in China.

4. Recommendations to improve corporate social responsibility in China

4.1 Promote low-carbon economy

Global warming challenges the survival and development of human beings seriously. Low-carbon economy is a kind of new development model based on low consumption, low pollution and low emission. It has become an international consensus and an important way to change development patterns, struggle for development space and win competitive advantages in many countries. At present, China is experiencing a critical period of building a moderately prosperous society and accelerating industrialization and urbanization. Considering scarce resources and energy along with limited emission space, there is no alternative but constructing resources-conservation and environmentally friendly society. On November 26th 2009, China put forward a specific emission reduction target: carbon dioxide emissions that per Gross Domestic Product (GDP) brings will decrease by 40% to 45% from 2005 to 2020. And the target has been put into the long-term planning of national economic and social development as a binding index. As a developing country, China has a long way to go since it is not only necessary to develop economy, but also important to reduce greenhouse gas. It requires a lot of technology and capital.

In recent years, many well-known Chinese companies fell into scandals of pollution constantly, which has triggered broad and deep discussion of Chinese enterprises' environmental responsibilities and the concept of Green GDP. The frequent pollution accidents have much to do with enterprises' preference for taking a chance, local government's poor performance and low costs of infracting laws. However, the key may be the paradox between local economic development and environmental protection.^[10] On one hand, local governments should increase the costs of utilizing resources and push for a stricter punishment mechanism for pollution. On the other hand, the central government should add environmental indicators into performance evaluation system of local officials.

On January 13th 2012, the National Development and Reform Commission informed that China will carry out carbon emissions trading in Beijing, Tianjin, Shanghai, Chongqing, Guangdong, Hubei, and Shenzhen as a pilot and establish domestic carbon emissions trading market gradually to meet the target of greenhouse gas emissions reduction in 2020 at a low cost. Compared with the administrative means, it may be more effective. However, it will take a long time to build a mature market of carbon emissions trading from scratch. It is necessary to learn from successful international experience and take into account actual conditions in China at the same time.

4.2 Establish appropriate standards of corporate social responsibility for China

According to incomplete statistics, there are over 400 standards of CSR, but none is

customized to China, which is detrimental for Chinese enterprises to fulfill their social responsibility and participate in international competition. It's extremely necessary to fill this gap as soon as possible since it is rather passive to introduce international standards simply. The soft competitiveness of CSR is an emerging challenge.

The prospects for global economic recovery are quite complicated and supply exceeds demand. As a result, trade competition will inevitably continue to be tougher. As the largest exporter, China is bound to be in the dock. The World Bank reports that there were 19 newly launched anti-dumping investigations totally in the world in the first quarter of 2010. Nine of them were against Chinese exports, accounting for 47% of the total, which ranked the first in the world. With the development of economic globalization, trade liberalization and restriction on relevant WTO rules, more flexible and hidden trade barriers in international trade are emerging, such as technical barriers and green barriers, which are more nominally reasonable, formally legitimate and materially canonical.

SA8000 primarily tries to protect workers' rights and avoid inhuman treatment. It is a severe challenge to Chinese enterprises, which depend on demographic dividend, to stand out in the international market. According to recent investigations from USA, over 50% of multinational companies and foreign-funded ventures have announced that they will re-sign procurement contracts with Chinese enterprises according to SA8000 standards. A majority of small and medium export enterprises in China will face significant operational risks.^[11] SA8000 is mainly implemented in labor-intensive manufacturing enterprises. Unfortunately, Chinese products in the international market are mostly labor-intensive. Especially in the Pearl River Delta Region, its exports account for one-third of the total in China, and labor-intensive commodities are its mainstay. No doubt the Pearl River Delta Region will attract attention from developed countries. If the standards cannot be met, exports will sharply fall and lots of companies will be on the verge of bankruptcy.

Although the ISO has claimed that ISO26000 is different from ISO9000 and ISO14000, which is neither a management standard nor a certification standard. It is just a voluntary international standard for guidance. However, due to the great influence of the International Standards Organization, ISO26000 will inevitably get close to a certification standard just like SA8000 over time. Furthermore, the content of ISO26000 is much more extensive than SA8000. In order to achieve the ISO26000, companies will have to take measures to raise staff wages, improve working conditions and add investment to environmental protection, which would inevitably lead to higher costs and weaken Chinese exports' price advantage, resulting in decline of total export volumes.

It is meaningless to build standards of corporate social responsibility in China without international recognition. Government or industry associations should come forward to strengthen communication and connection with the international community, making the Chinese standards converge to international ones. During the process of construction, we should follow PDCA (Plan-Do-Check-Act) management pattern, which was proposed by the renowned quality management expert Edwards Deming. Once the pilot has achieved initial success, the corporate social responsibility standards can be promoted to the whole country. What's more, it is significant to set up specific government departments to identify CSR or cultivate third-party certification

bodies actively.

The enterprises should be facilitated to regularly issue report of corporate social responsibility and receive public supervision. For the active participants, the government should give some policy support in order to encourage more enterprises to take part. We can refer to the practice of internal control report, escalate the voluntary disclosure into a mandatory one and introduce a third party auditing gradually. The State Grid has been exploring the third-party auditing of CSR report recently.

4.3 Encourage Socially Responsible Investment

Socially Responsible Investment (SRI), also known as sustainable, socially conscious, green or ethical investment, is an investment strategy which seeks to consider both financial return and social good. The term is often used broadly to include more proactive practices such as impact investing, shareholder advocacy and community investing.

Currently, the world's largest SRI market lies in United States, followed by Britain, Netherlands and Sweden. It is a powerful investment class that cannot be ignored in the global fund management field, but it is still in its infancy in China. In April 2008, the initial local SRI product, Xingye Socially Responsible Investment Funds, was issued in China. By August 27th 2010, the net growth rate has been 51.21%, considering dividend reinvested, far exceeding the average market performance over the same period. On August 5th 2009, Shanghai Stock Exchange officially released the index of social responsibility in Shanghai Stock Exchange. Figures show that in 2008 the index's average social contributions per share were ¥2.42, and the average earnings per share were ¥0.69, much higher than the average level of Shanghai Stock Market. All the encouraging performance of SRI reflects the theme of social responsibility.

The development of SRI requires joint efforts from government, business, media, research institutions and public. First of all, we should enrich SRI products with financial innovation. Secondly, we need to not only increase the quantity of CSR information, but also improve the quality, including structural integrity, reliability of the report, materiality of the content, comparability of performance, readability and innovative level of the report. Thirdly, corporate social responsibility should be extended upstream and downstream. For instance, in food and beverage sector, the upper manufacturing of dairy and meat is vital to fulfill corporate social responsibility. Similarly, a battery manufacturer should help customers recycle and manage waste batteries. Fourthly, ensure that the media and public can expose and discuss CSR issues uninhibitedly in traditional or modern ways. Finally, the government should continue to improve the requirements in corporate social responsibility. For example, The Ministry of Environmental Protection, the CBRC(China Banking Regulatory Commission) and the CSRC(China Securities Regulatory Commission) should coordinate to build up green credit and strengthen the supervision on environment protection and corporate governance of public companies.

How to make socially responsible investment and advocate investors to be active shareholders is an important issue for fund management companies and other professional organizations. Technical training of impact investing, shareholder advocacy and community investing is in anxious demand. Domestic institutional investors in these fields should continue to exchange ideas and share experience with overseas counterparts as well as NGOs (Non-government Organizations).^[12]

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