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Contents

Contents

Role Stressors and Burnout: Effects of Social Relationships

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Abstract

Many studies found direct relations between burnout, role conflict, role ambiguity and work relationships, but few have verified the possibility of moderation and mediation effects between these variables. This cross-sectional study investigates these two possibilities in an attempt to clarify the function of work relationships in the association between role stressors and burnout. This study was conducted on a sample of 263 French-speaking Canadian workers from nine different organizations. Hierarchical multiple regression analyses were conducted in order to investigate the purported interaction between social relationships and role stressors. Mediation effects were also verified through multiple regressions involving a bootstrapping procedure to estimate the indirect effects of role stressors on burnout. The results provided no evidence in favor of moderation. Conversely, the results revealed rather that social relationships did

mediate the relationship between role stressors and burnout.

Keywords: Burnout, Role conflict, Role ambiguity, Mediation, Moderation, Relationships

1. Introduction

According to Maslach, Schaufeli and Leiter (2001), burnout is a work-related psychological syndrome, which can be defined by a combination of emotional exhaustion, depersonalization and reduction of personal accomplishment. The first component, emotional exhaustion, refers to a feeling of exhaustion leading the worker to think that he will be unable to invest himself any further in his tasks. The second component, depersonalization, refers to a cognitive distance that is expressed by an attitude of indifference and cynicism toward clients, colleagues and supervisors. The third component, reduction of personal accomplishment, refers to a feeling of reduced competency at meeting job demands.

The burnout syndrome is known to exert a deleterious impact on both an organization's efficiency and an employee's health. Stephens and Joubert (2001) estimated that in 1998 alone, the costs of mental health problems accounted for a loss of more than 14 billion dollars for the Canadian economy, half of which appeared to be related to reduced productivity. Furthermore, it is now recognized that burnout may precipitate the development of mental health problems such as depression and anxiety (Maslach et al., 2001) and that it can negatively affect the social network and family life of affected employees (Burke & Greenglass, 2001). These considerations support the increasing amount of scientific attention that has been devoted to burnout development and prevention in the past few years.

1.1 Risk Factors for Burnout Development

To prevent burnout effectively, it is crucial to understand the risk processes involved in this syndrome. Although some individual risk factors have been pointed out by previous studies as playing a role in burnout development (e.g. Cordes & Dougherty, 1993; Maslach & Jackson, 1985; Russell, Altaimer, & Van Velzen, 1987; Zellars, Perrewé, & Hochwarter, 2000), organizational factors definitely occupy a central place. Indeed, studies showed quite clearly the crucial influence of organizational factors in burnout development, such as work schedule (e.g. Jamal, 2004), work load (e.g. Leiter, 1991a), role conflict and role ambiguity (e.g. Cordes & Dougherty, 1993), client type (e.g. Burke & Greenglass, 1989), social support at work (e.g. Leiter, 1991b), attribution of rewards (e.g. Schwab, Jackson, & Schuler, 1986) and organizational justice (e.g. Maslach et al., 2001). Among those organizational risk factors, role stressors (role conflict and role ambiguity) (e.g. Cordes & Dougherty, 1993) and the quality of employees' social relationships at work (e.g. Viswesvaran, Sanchez, & Fisher, 1999) appeared particularly important.

Role conflict can be defined as the extent to which employees receive conflicting or incompatible instructions concerning their role at work (Haynes, Wall, Bolden, Stride, & Rick, 1999). Many studies, both cross-sectional and prospective, corroborate the important function of role conflict in burnout development (e.g. Cordes & Dougherty, 1993; Peiro, Gonzalez-Roma, Tordera, & Manas, 2001). Role ambiguity refers to the extent to which workers fail to clearly understand their role at work (Haynes et al, 1999). This occurs when employees lack information concerning the proper performance of their tasks (Tummers, Landdeweerd, & Van Merode, 2002). Again, many studies show that role ambiguity also represents an important risk factor for burnout development (e.g. Jackson, Schwab, & Schuler, 1986; Schwab & Iwanicki, 1982). It should be noted that, even if they represent two different concepts (Jackson & Schuler, 1985), role conflict and role ambiguity are generally related and studied together. For instance, relying on a sample of 225 school administrators, Mansfield (1983) observed a positive correlation between role conflict and role ambiguity and found that both variables contributed to explain a significant portion of burnout variance when considered together.

Although exposure to role ambiguity and role conflict may represent a major source of stress, frustration and conflicts in employees' professional lives, exposure to poor social relationships at work, either with colleagues or with supervisors, may also represent a heavy burden (Gaines & Jermier, 1983). Studies that specifically evaluated the impact of positive social relationships with supervisors showed that they were associated positively with work satisfaction and negatively with burnout (e.g. Baker, Israel, & Schurman, 1996; Schlansker, 1986). Similarly, studies specifically focusing on the effects of positive social relationships with colleagues at work and of effective teamwork indicate that they are negatively related to burnout and work stress (e.g. Burke, Shearer, & Deszca, 1984; Demir, Ulusoy, & Ulusoy, 2003; Jackson et al., 1986; Leiter & Maslach, 1988; Mclean, 1996).

Studies that investigated the relation between role stressors and the quality of social relationships at work have shown that these two types of risk factors also appeared to influence one another (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Liou, 1995), placing workers in a vicious circle from which it becomes increasingly hard to extricate themselves. For instance, Kahn et al. (1964) observed a long time ago that employees exposed to role conflict or role ambiguity also tended to have poor relationships with their supervisors. This effect may be explained in two different ways. On the one hand, as it is normally up to the supervisor to clearly define employees' roles, it is likely that employees exposed to contradictions or ambiguities will consider their supervisors to be responsible for this unpleasant situation. On the other hand, it is also likely that a supervisor who does not trust certain employees might willingly provide them with

ambiguous instructions to limit their initiatives. Kahn et al.'s (1964) results have since been corroborated by many studies (French & Caplan, 1970; Leiter & Maslach, 1988; Liou, 1995; Margolis, Droes, & Quinn, 1974).

Clearly, these results suggest that the effects of both variables on burnout may be interdependent. Nevertheless, very few studies considered the possibility of interrelations (moderation (Note 1) or mediation (Note 2)) between those variables in the development of burnout. These scarce studies came to highly diverging conclusions. Some of them suggest that social support (received from colleagues as well as from supervisors) could represent a buffering factor that moderates the relation between stress agents (e.g. role conflict and role ambiguity) and burnout (Beehr, King, & King, 1990; Harvey, Kelloway, & Duncan-Leiper, 2003; Kirmeyer & Dougherty, 1988; Posig & Kickul, 2003). However, other studies failed to replicate these results (Chappell & Novak, 1992; Ross, Altmaier, & Russell, 1989). Similarly, the results equally conflict regarding the possibility of social support mediating the relationships between stress and burnout (Choenarom, Williams, & Hagerty, 2005; Gonzalez, 1997; Rwampororo, 2001; Yarcheski & Mahon, 1999).

1.2 Objectives and Hypotheses

This study strives to clarify these results by verifying the possibility that the quality of social relationships at work (with colleagues and supervisors) could moderate and/or mediate the association between role stressors (role conflict and ambiguity) and burnout. More precisely, four hypotheses will be verified:

H1: The quality of social relationships at work, with supervisors as well as with colleagues, moderates (reduces) the association between role conflict and burnout.

H2: The quality of social relationships at work, with supervisors as well as with colleagues, moderates (reduces) the association between role ambiguity and burnout.

H3: The quality of social relationships at work, with supervisors as well as with colleagues, mediates the association between role conflict and burnout.

H4: The quality of social relationships at work, with supervisors as well as with colleagues, mediates the association between role ambiguity and burnout.

2. Methodology

2.1 Participants

This study relies on a convenience sample of 263 French-speaking participants (42.5% men; 37.41 years old on average; 55.3% participation rate) recruited from nine organizations located in the Canadian province of Quebec. Less than a third of the participants hold a university degree (29.5%), 32.1% have completed high school, and 34.5% have completed CEGEP (a Quebec transitional institution between high school and university). Finally, 8.5% of the participants are executives, 10.4% are supervisors, and 81.1% are first-level employees.

2.2 Procedure

Three different data collection procedures were used. With the first procedure, the questionnaires were administered directly at work by the research team (8.4%; 71.0% participation rate). The interviewer met all the volunteers in a room, read the instructions, answered questions and distributed the questionnaires. With the second procedure, the questionnaires were handed out to the employees directly by the person in charge of the project in the organizations (55.1%; 55.8% participation rate). This person described the project to the employees, invited them to participate, read the instructions, distributed the questionnaires and ensured proper follow-up. In some organizations, the person met all the volunteers in a room and collected the questionnaires at the end, while in others, volunteers received the questionnaires with a return envelope. With the third procedure, the questionnaires were individually handed out with a return envelope to volunteers by a member of the research team, who explained the project and read the instructions (36.5%; 51.9% participation rate).

2.3 Measures

2.3.1 Socio-demographic characteristics

Many authors have identified socio-demographic variables involved in the development of burnout (Cordes & Dougherty, 1993; Maslach & Jackson, 1985; Russell et al., 1987). In this study, three of these variables were selected for control purposes: (a) gender, (b) age and (c) education.

2.3.2 Role conflict and role ambiguity.

Role conflict and role ambiguity were measured by Haynes et al.'s questionnaire (1999). Both subscales of this questionnaire were translated and adapted into French by a classical translation back-translation procedure with independent bilingual judges. The role ambiguity subscale is composed of four items ($\alpha = .87$; e.g. "I have clear planned goals and objectives for my job"), and the role conflict scale is composed of five items ($\alpha = .83$; e.g. "I often receive conflicting instructions from two or more persons"). These items are rated on a five-point Likert-type scale. Since the

role ambiguity subscale is inverted, it will hereafter be referred to as a "role clarity" subscale. Preliminary exploratory factor analyses (with maximum likelihood estimation and oblimin rotation), conducted in this study confirmed the proposed factor structure of this instrument (KMO = .819; Bartlett $p < .001$; loadings = .445 to .886; 44.6% of explained variance).

2.3.3 Quality of social relationships at work

The quality of the employees' social relationships at work was evaluated by a combination of three questionnaires, one which measured teamwork quality (La Financière Agricole du Québec, 1993), one which measured the quality of the employees' relationships with their supervisors (Scandura & Graen, 1984), and one which measured the level of interpersonal trust that characterize these relationships (Cook & Wall, 1980). The interpersonal trust at work scale is subdivided into two main dimensions: trust in colleagues and trust in management. In the present study, the measure of the quality of the employees' relationships with their colleagues was based on an aggregation of the teamwork quality questionnaire and of the interpersonal trust in colleagues subscale. Similarly, the measure of the quality of the employees' relationships with their supervisors was based on an aggregation of the relationship with supervisor questionnaire and of the interpersonal trust in management subscale. Preliminary exploratory factor analyses (with maximum likelihood estimation and oblimin rotation), conducted in this study confirmed the proposed factor structure of these instruments (KMO = .908; Bartlett $p < .001$; loadings = .322 to .871; 44.5% of explained variance) as well as the appropriateness of the aggregation process used in this study.

2.3.3.1 *Quality of teamwork.* Teamwork quality was measured using the Teamwork subscale from the Organizational Human Performance Indicator, an organizational diagnosis instrument developed by La Financière Agricole du Québec (1993). This instrument is composed of five items (e.g. "When I am working in a team, I am able to rally to a decision"), which are rated on a five-point Likert-type scale ($\alpha = .79$).

2.3.3.2 *Quality of the relationship with the supervisor.* The quality of the social relationship between the employees and their supervisor was measured using a French version of the LMX (Leader/Member Exchange: Scandura & Graen, 1984; Villeneuve & Letarte, 1989). This instrument is composed of seven items (e.g. "How would you characterize your working relation with your manager?") to which participants answer by choosing one of four alternatives (e.g. "1- Not efficient" to "4- Very efficient") ($\alpha = .93$).

2.3.3.3 *Interpersonal trust at work.* The employees' interpersonal trust in their colleagues and management was measured using Cook and Wall's (1980) Interpersonal Trust at Work questionnaire. Both subscales of this questionnaire were translated and adapted into French by a classical translation back-translation procedure with independent bilingual judges. Each subscale was composed of six items assessing the degree to which participants feel they can have faith in the intentions of their colleagues and confidence in their actions ($\alpha = .91$; e.g. "If I got into difficulties at work I know my workmates would try and help me out") and management ($\alpha = .87$; e.g. "Management can be trusted to make sensible decisions for the firm's future"). These items were rated on a seven-point Likert-type scale.

2.3.4 Burnout

Burnout was measured with the MBI-GS (Maslach Burnout Inventory General-Survey; Schaufeli, Leiter, Maslach, & Jackson, 1996). This questionnaire was translated and adapted into French by a classical translation back-translation procedure with independent bilingual judges. This instrument evaluates three distinct, yet related ($.35 < r < .67$), dimensions of burnout (Demerouti, Bakker, Vardakou, & Kantas, 2003; Schutte, Toppinen, Kalimo, & Schaufeli, 2000): (a) emotional exhaustion (five items; $\alpha = .93$; e.g. "I feel emotionally drained from my work"); (b) cynicism (five items; $\alpha = .88$; e.g. "I just want to do my job and not be bothered"); (c) reduced professional efficacy (six items; $\alpha = .76$; e.g. "I can effectively solve the problems that arise in my work"). These items are rated on a seven-point Likert-type scale. In the present study, an aggregated global measure of burnout will be used. Preliminary exploratory factor analyses (with maximum likelihood estimation and oblimin rotation), conducted in this study confirmed the proposed factor structure of this instrument (KMO = .847; Bartlett $p < .001$; loadings = .384 to .919; 48.6% of explained variance) as well as the possibility of aggregating the three subscales into one.

2.4 Analytical strategy

2.4.1 Moderation

As the testing of interactions inherent in moderation analysis often results in serious multicollinearity, all controls, predictors and moderators were converted beforehand into deviation score form (centered at their mean) to avoid this problem (Aiken & West, 1991). Burnout was first regressed in separate linear regressions on every control, predictor and moderator used in this study to ascertain their association with burnout. At this stage, non- significant variables were withdrawn from subsequent analyses. A three-step hierarchical regression was then conducted in which burnout was regressed on three blocks of predictors entered sequentially in the analysis: (a) the first block comprised the socio-demographic characteristics; (b) the second block comprised the role stressors; and (c) the third block comprised the quality of social relationships indicators. The final model including the significant predictors was then replicated in

a final analysis.

To verify whether social relationships at work may moderate the relationship between role stressors and burnout, four interaction terms were created by the product of pairs of predictors (P) and moderators (M) (P*M: relationship with colleagues * role clarity; relationship with colleagues * role conflict; relationship with supervisor * role clarity; relationship with supervisor * role conflict). These variables were then introduced in the last step of a hierarchical multiple regression, following the main effects of both variables included in the product term. This procedure was conducted separately for each interaction to further limit multicollinearity. Significant interactions were then decomposed to test the variation of P effects according to M levels (Aiken & West, 1991; Cohen & Cohen, 1983). Briefly, in a regression analysis in which two-way interaction terms (M*P) are entered after the main effects of both P and M, the coefficients *a* (intercept) and *b* (slope) associated with P represent the effect of this variable when M equals zero. As each variable was centered at the mean, these coefficients represent the effect of P at a mean value of M. To obtain an estimate of the effects of P at additional values of M, one simply has to add or subtract constants to M so that zero represents different values and to compare the resulting coefficients. In this study, new variables were thus created to estimate the effects of P at a low and high level of M by respectively adding and subtracting a standard deviation (Aiken & West, 1991).

2.4.2 Mediation

The different steps involved in verifying a mediation effect are depicted in figure 1 and follow the recommendations of Baron and Kenny (1986): (1) Is the predictor (P) significantly associated to the outcome (O) (τ)? (2) Is P significantly associated with the mediator (M) (α)? (3) Is M significantly associated with O (β)? (4) Is the P-O relation significantly reduced when M is simultaneously entered in the equation ($\tau' < \tau$)? The significance of a mediator (indirect effect) can be verified using two different methods: (1) verifying that $\tau - \tau'$ significantly differs from zero; (2) verifying that $\alpha*\beta$ significantly differs from zero. Recent studies comparing the effectiveness of the most common methods used for verifying indirect effects concluded that the second method ($\alpha*\beta$) was generally more effective (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Moreover, given the frequent asymmetry of theoretical distributions of $\alpha*\beta$, verifying their significance through bootstrapped 95% confidence intervals was also recommended (MacKinnon et al., 2004). Bootstrapping relies on a resampling strategy in which a large number of samples (5000 in this study) of a size equivalent to the original one are derived from the original data by a sampling with replacement strategy. The indirect effect ($\alpha*\beta$) is then separately computed in each of the bootstrapped samples to derive a new empirical $\alpha*\beta$ distribution (Preacher & Hayes, 2004). From the resulting distribution, a confidence interval (95% in this case) around the indirect effect ($\alpha*\beta$) can be constructed. If this interval excludes "zero," the indirect effect obtained can be considered to differ significantly from zero. In the present study, bootstrapped confidence intervals were computed with the macro developed by Preacher and Hayes (2004) and available on their quantpsy.org website.

Insert Figure 1 about here

3. Results

3.1 Preliminary analyses

Preliminary analyses showed that all of the variables were normally distributed (-.66 < skewness and 1.3 > kurtosis) and presented means and standard deviations within plausible and acceptable ranges. Less than 3% of the data were missing on each of the variables. Given this, missing values were replaced by the mean of the sample on each variable, following Tabachnick and Fidell (2007) recommendations. Inspection of the Mahalnobis, Cook, and Leverage values (Tabachnick & Fidell, 2007) revealed four multivariate outliers. Analysis were replicated with and without these subjects and revealed that their inclusion did not change the results. All results will thus be reported including all of the participants. Finally, inspection of the SPSS colinearity diagnostics (e.g. .62 < tolerance < .74) revealed no problems of multicolinearity or singularity.

The means, standard deviations and correlations of the variables are presented in Table 1. These results confirm the association of all variables with burnout as well as their distinct character. Because the amount of missing data was low for each variable (n = 257 to 263), the missing values were replaced by the variable mean.

Insert Table 1 about here

3.2 Main effects and moderation

The results from the initial regression analyses are reported in Table 2. The results from the initial linear regressions analysis failed to confirm the association of socio-demographic characteristics with burnout. However, these analyses clearly confirmed the associations between both predictors and both moderators on the one hand, and burnout, on the other hand. The first step in the hierarchical multiple regression analyses (which excluded controls due to their non-significant association with burnout) confirmed that both moderators (the quality of employees' relationships with their colleagues and with their supervisor) represented significant predictors of burnout. In the second step, both

predictors (role clarity and role conflict) were entered in the equation. At this stage, role clarity, role conflict and the quality of employees' relationships with their supervisor emerged as significant predictors of burnout. Conversely, the quality of employees' relationships with their colleagues became non-significant and were taken out from the final model. The final model, including the three significant predictors, explained 32.9% of burnout variance. Finally, the potential moderating role of the quality of employees' social relationships with their colleagues and of the quality of their relationships with their supervisor on the link between role stressors and burnout was tested in a final set of hierarchical multiple regressions in which the interaction terms were entered last. These results are reported in Table 3 and indicate that none of these interactions proved significant, thus refuting hypotheses 1 and 2.

Insert Table 2-3 about here

3.3 Mediation

The results from the regression analyses in which the mediating role of the quality of employees' social relationships with colleagues and supervisors on the relationships between role stressors and burnout was tested are reported in Figures 2 to 5. Bootstrapped confidence intervals from the indirect effects are reported in Table 4. In all cases, the effects of role stressors on burnout (τ) proved significant. Similarly, the effects of role stressors on social relationships (α), as well as the effects of social relationships on burnout (β) also proved significant in all cases. Finally, the effects of role stressors on burnout remained significant, yet reduced, after the inclusion of social relationships at work in the equation (τ') in all cases. This apparent reduction suggests that there is partial mediation in the four cases, which is confirmed by the results from the indirect effects' bootstrapped confidence ($\alpha*\beta$), which all excluded zero. These results confirmed hypotheses 3 and 4.

Insert Figures 2 to 5 and Table 4 about here

4. Discussion

This study's main objective was to verify whether the quality of social relationships at work moderate and/or mediate the association between role stressors (role conflict and clarity) and burnout. Before directly verifying these hypotheses, the main effects of both predictors and moderators on burnout were first verified. The results from this first set of analyses clearly concur with those from previous studies by showing a direct association between role stressors (e.g. Cordes & Dougherty, 1993; Jackson, Turner & Brief, 1987; Jackson et al., 1986; Mansfield, 1983; Peiro et al., 2001; Schwab & Iwanicki, 1982), negative social relationships at work (Baker et al., 1996; Burke et al., 1984; Demir et al., 2003; Jackson et al., 1986; Mclean, 1996; Schlansker, 1986) and burnout development, although role clarity appears to represent the least potent of these predictors.

4.1 Moderation hypotheses

The first two hypotheses proposed that the quality of social relationships at work, with supervisors as well as with colleagues, would moderate (reduce) the association between role stressors and burnout. The results failed to confirm these hypotheses and found no evidence of moderation. These results are both consistent (Chappell & Novak, 1992; Ross et al., 1989) and inconsistent (Beehr et al., 1990; Posig & Kickul, 2003) with those from previous studies. One way to explain these divergences is to invoke the way social relationships were measured. For instance, as in the present study, Chappel and Novak (1992) used a measure tapping more the instrumental side of social relationships rather than the affective one and failed to find evidence of moderation. Conversely, studies in which evidence of moderation were found tended to use more affective or emotional definitions of social relationships (Beehr et al., 1990; Posig & Kickul, 2003).

The present results clearly shed doubts on the validity of the stress-buffering model of social support/social relationships (see Cohen & Wills, 1985), at least concerning the potential protective role of instrumental support on the relationships between stressors (role conflict and role clarity) and burnout. Indeed, this model postulates that the effects of various forms of work-related stressors can be attenuated when employees receive a high level of social support from their colleagues and supervisors. This effect is purported to occur both directly through the provision of tangible help to solve the stressful situation and indirectly by raising employees' confidence that help would be available if needed. The results appear to contradict this model by showing that the effects of both variables are additive rather than interacting.

4.2 Mediation Hypotheses

The third and fourth hypotheses proposed that the quality of social relationships at work, with supervisors as well as with colleagues, mediates the association between role stressors and burnout. The results obtained confirmed both hypotheses by showing that the relationships between both types of role stressors (role conflict and role clarity) and burnout were partially mediated by both forms of social relationships at work (with supervisors and colleagues). These results are clearly consistent with most previous studies which confirm the potential mediating role of social relationships in the chain of events linking stress to various forms of illnesses (Choenarom et al., 2005; Rwampororo, 2001; Yarcheski & Mahon, 1999; but see Gonzalez, 1997). Similarly, these results also appear consistent with the

propositions from Lazarus and Folkman's (1984) transactional model of stress, which stipulates that social support represents a mediator in a complex system of relations linking stress to physical and mental illnesses. Furthermore, they also concur with Lin and Ensel's (1984) model that advances the possibility that stressful events in people's lives may cause evading responses from their social network, thus reinforcing their initial negative reactions. In light of this model, the present results may indicate that when an employee becomes stressed due to role conflict or ambiguity, co-workers (supervisors and colleagues) would prefer to remain distant from this employee rather than risk experiencing the backlash of his or her negative emotions. The resulting social isolation would then reinforce the initial negative emotions of the employee, increasing his or her risk of burnout.

It must also be underlined that employees' relationships with their supervisor appear to play a stronger mediating role than those with their colleagues. This difference might be related to the fact that role definition and attribution are under the supervisor's responsibility. Consequently, the employee exposed to role conflict or role ambiguity at work may come to blame his supervisor for this stressful situation, thus decreasing the quality of their social relationship. Deprived of this potentially important source of social support, the employee's risk of burnout would further increase.

4.3 Limitations

As they are subject to many non-trivial limitations, the results from this study should be interpreted with caution. The potentially most serious of these limitations concerns the reliance on a convenience sample, which considerably reduces the generalizability of the results obtained and underscores the need for replication. A second limitation emerges from the use of a single source of assessment (self-reports) for all variables, which may introduce various biases in the results, such as the shared-method-variance effect that tended to overestimate the size of the observed relations between variables (Fox & Spector, 1999). Finally, as the present study uses a cross-sectional design, no relations of causality could be inferred from the results. Indeed, Frazier, Tix and Barron (2004) mention three criteria that must be met to infer causality: (1) an association must exist between two variables; (2) this association must be isolated by controlling the effect of other variables; (3) the cause must precede the effect in time. The present results must thus be interpreted with care because only the first criterion and part of the second one were met by the present methodological design.

4.4 Conclusion

This study provides important information to researchers and professionals interested in the mechanisms involved in burnout development. Indeed, not only does this study replicate the conclusions from previous studies by suggesting a direct relationship of role stressors on burnout, it also helps to clarify the potential mechanisms involved in this relationship. At this level, the results suggest that positive social relationships with colleagues and supervisors involving instrumental support do not appear to represent an efficient buffer against the effects of role conflict and ambiguity on burnout development. However, negative social relationships still appear to represent at least one of the intervening mechanisms involved in the deleterious effects of role ambiguity and conflict on burnout development. Thus, it seems that the effect of role stressors on burnout may occur at least in part through a deterioration of the quality of social relationships at work. This result is important and suggests that a possible way to prevent burnout is by promoting a greater level of awareness of the preliminary signs of burnout. A related intervention could be to help co-workers and managers act efficiently upon identifying these preliminary signs rather than withdrawing from a relation that otherwise appears to become increasingly demanding.

It is also important to remember that reality is probably much more complex and that many other factors can also play a role in the chain linking role stressors and work stressors to burnout. For instance, powerlessness and commitment might also occupy a crucial position in this chain reaction. According to Kottkamp and Mansfield (1985), a chronic situation of role conflict and role ambiguity could trigger an increase in feelings of powerlessness, which could also be amplified by a breakdown in the employees' social network. Powerlessness could, in turn, represent a key factor in burnout development (Crane & Iwanicki, 1986; Maslach, 1982). As well, according to Leiter and Maslach (1988), role conflict and a poor relationship with a supervisor could decrease commitment toward the organization. This decrease in commitment could then have a direct effect on burnout development (Kalliath, O'Driscoll, & Gillespie, 1998), in addition to reinforcing the initially negative perception that the supervisor had of the employee.

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Notes

Note 1. Moderation occurs when a third variable – the moderator – affects the direction and/or the strength of the relationship between an independent variable (the predictor) and a dependent variable (the outcome), so that the impact of the predictor on the outcome varies according to the level of the moderator (Baron & Kenny, 1986).

Note 2. Mediation occurs when the association between a predictor and an outcome is explained (completely or partially) by a third variable (the mediator). A mediator is identified when: (a) there is a significant association between the predictor and the outcome; (b) there is a significant association between the predictor and the mediator, as well as a significant association between the mediator and the outcome; (c) the relation between the predictor and the outcome is significantly reduced (or eliminated in the case of complete mediation) when the mediator is simultaneously entered into the equation (Baron & Kenny, 1986).

Table 1. Mean, standard deviations, correlations, and internal consistency of studied variables

		Mean	Standard deviation	1	2	3	4	5
1	Burnout	23.154	14.12413	(.863)				
2	Role conflict	12.6579	3.96936	.428*	(.834)			
3	Role clarity	16.8411	2.45463	-.454*	-.463*	(.874)		
4	Social relationships with colleagues	5.4151	0.75025	-.342*	-.259*	.306*	(.908)	
5	Social relationships with supervisor	4.8801	1.19365	-.483*	-.469*	.386*	.493*	(.868)

Note. The internal consistency coefficients (α) are indicated in parentheses in the diagonal; * = $p<.05$

Table 2. Effect of demographic characteristics, role stressors and social relationships at work on burnout

	Simple effects			Step 1			Step 2			Step 3		
	B	t	p	β	t	p	β	t	p	β	t	p
Education	-0.045	-0.720	.472									
Gender	-0.054	-0.879	.380									
Age	0.036	0.585	.559									
Rel. with colleagues	-0.341	-5.867	.000	-0.138	-2.233	.026	-0.094	-1.611	.108			
Rel. with supervisor	-0.483	-8.913	.000	-0.416	-6.735	.000	-0.266	-4.165	.000	-0.308	-5.261	.000
Role conflict	0.428	7.645	.000				0.163	2.672	.008	0.161	2.641	.009
Role clarity	-0.454	-8.233	.000				-0.250	-4.254	.000	-0.263	-4.506	.000

Table 3. Results from the interaction effects of role stressors and social relationships in the prediction of burnout

	β	t	p
Role conflict * quality of work relationships with colleagues	-0.072	-1.411	.159
Role conflict * quality of work relationships with supervisor	-0.025	-0.472	.637
Role clarity * quality of work relationships with colleagues	0.030	0.578	.564
Role clarity * quality of work relationships with supervisor	-0.020	-0.345	.731

Table 4. Bootstrapped indirect effects of role stressors on burnout with the quality of social relationships as a mediator

Predictor	Mediator	Outcome	Averaged Indirect Effect	Standard Error	95% Confidence Interval
Role Conflict	Rel. with supervisor	Burnout	0.6053	0.1240	0.3928 to 0.8923*
Role Conflict	Rel. with colleagues	Burnout	0.2284	0.0806	0.1016 to 0.4302*
Role Clarity	Rel. with supervisor	Burnout	-0.8116	0.1743	-1.1911 to -0.5006*
Role Clarity	Rel. with colleagues	Burnout	-0.4056	0.1443	-0.7386 to -0.1635*

* The confidence interval excludes zero and is therefore significant at $p < .05$

```
         τ (1)
┌─────────┐         ┌─────────┐
│    P    │ ──────► │    O    │
└─────────┘         └─────────┘
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              ┌─────────┐
              │    M    │
              └─────────┘
   α (2)                   β (3)
         ↗                ↘
┌─────────┐    τ'(4)    ┌─────────┐
│    P    │ ──────────► │    O    │
└─────────┘             └─────────┘
```
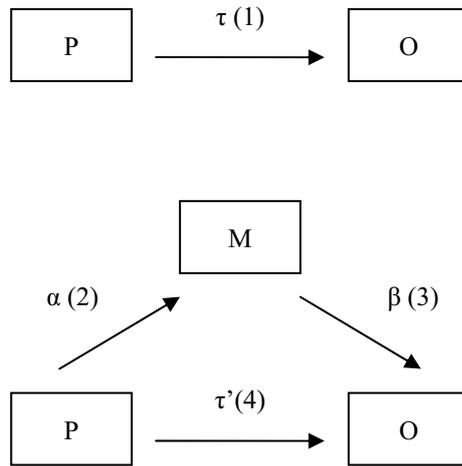
Figure 1. Steps involved in verifying a mediation effect

```
┌──────────────────────────────────────────────────┐
│     Quality of the relationship with the supervisor │
└──────────────────────────────────────────────────┘
   α = -0.14 (p < .001)                 β = -4.30 (p < .001)
         ↗                                    ↘
┌───────────────┐   τ' = 0.92 (p < .001)   ┌───────────────┐
│ Role conflict │ ───────────────────────► │    Burnout    │
└───────────────┘                          └───────────────┘
              τ = 1.52 (p < .001)
```
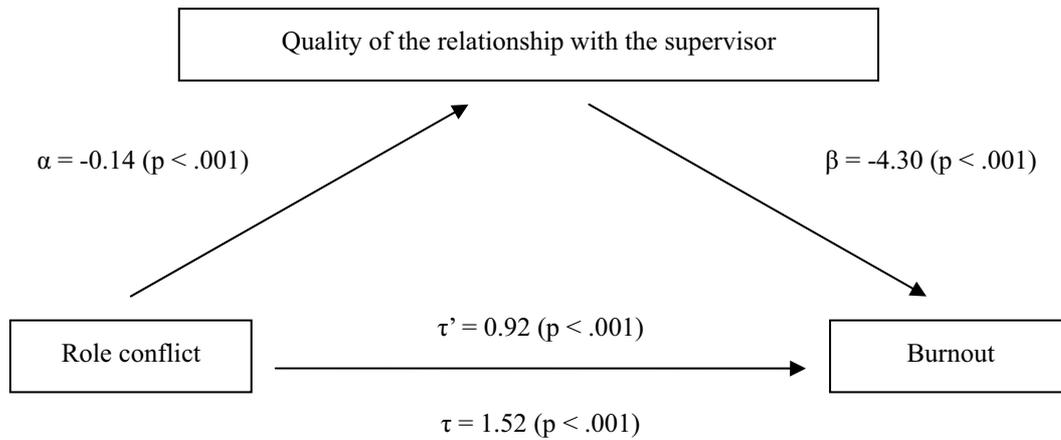
Figure 2. The association between role conflict and burnout mediated by the
quality of employees' relationships with their supervisors

Quality of the relationship with colleagues

$\alpha = -0.05$ (p < .001)

$\beta = -4.68$ (p < .001)

$\tau' = 1.31$ (p < .001)

Role conflict

Burnout

$\tau = 1.54$ (p < .001)
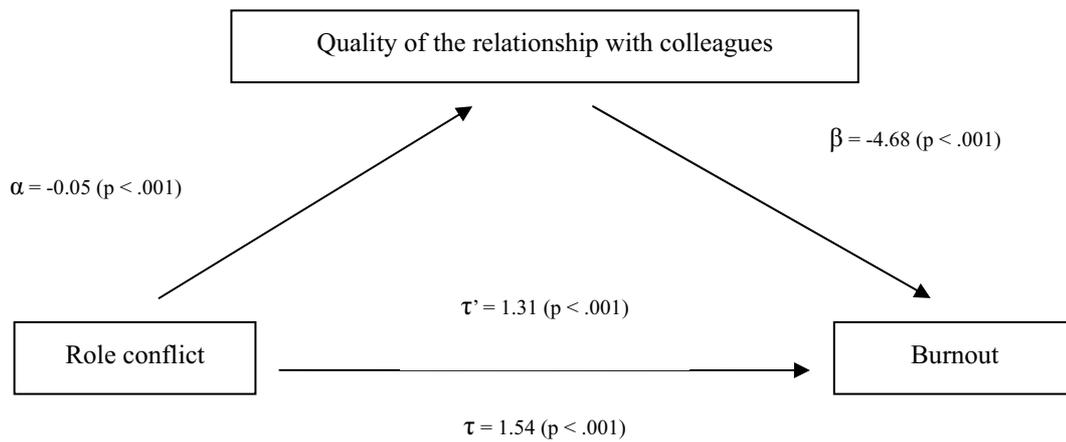
Figure 3. The association between role conflict and burnout mediated by the quality of
employees' relationships with their colleagues.

Quality of the relationship with the supervisor

$\alpha = 0.19$ (p < .001)

$\beta = -4.26$ (p < .001)

$\tau' = -1.87$ (p < .001)

Role clarity

Burnout

$\tau = -2.68$ (p < .001)
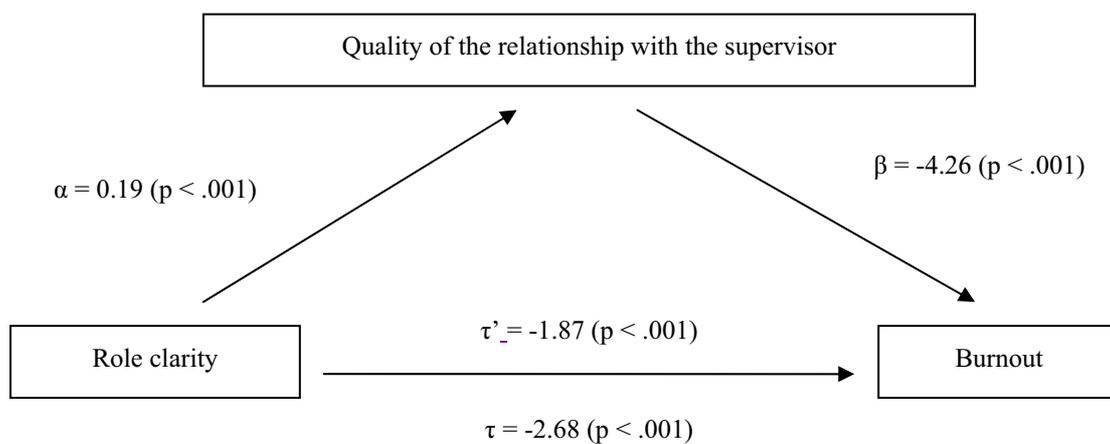
Figure 4. The association between role clarity and burnout mediated by the quality
of employees' relationships with their supervisors
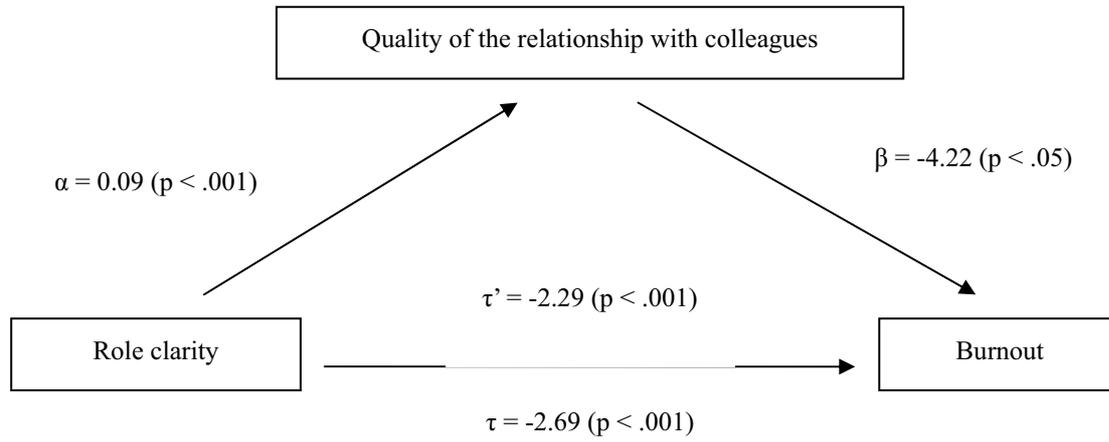
Figure 5. The association between role clarity and burnout mediated by the quality
of employees' relationships with their colleagues.

From Marketing Mix to E-Marketing Mix: a Literature Overview and Classification

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Abstract

The marketing mix paradigm, in its famous version of the 4 Ps, went all the way through the evolution of marketing theory being object of discussion both in academic literature and managerial practice. Though it's a fact that the 4 Ps marketing mix is a milestone of marketing theory, it is also true that the evolution of business contexts has created the need to review the "controllable factors" which form the marketing mix. The digital business represents the more recent of the business contexts and the one with the greater need for a differentiation of the mix. Throughout this evolutionary process, researchers have always been divided between the "conservatives", who think the 4 Ps paradigm is able to adapt to the environmental changes by including new elements inside each "P", and the "revisionists", who affirm that the 4 Ps paradigm is obsolete and propose new paradigms. This paper aims to clarify these two different approaches to marketing mix evolution through a review of the main literature regarding e-marketing mix, focusing on the development of marketing mix theory for the digital context.

Keywords: E-marketing, Marketing mix, E-marketing mix

1. Introduction

The business environment faced many changes since when, in 1953, Neil Borden for the first time introduced the term "marketing mix" in his speech at the American Marketing Association, and since Jerome McCarthy (1964) defined the 4 Ps marketing mix as a combination of all the factors which managers may leverage to satisfy market needs. Comprehending the roots of the traditional marketing mix is crucial in order to understand the distinction between "conservatives" and "revisionists" proposed in this paper.

1.1 Theoretical framework

In McCarthy's version, the marketing mix is composed of: product, price, place and promotion. Each of these Ps comprise a number of the twelve managerial policies described by Borden (1964), thus including other sub-mixes within each P. As noted by Kalyanam & McIntyre (2002), the marketing mix is a collection of thousands of micro-elements clustered together in order to simplify managerial activity. The validity or the exclusion of the traditional mix in the digital context is a matter of if and how it is possible and convenient to extend the number of elements it includes or to dismiss it and create a new one (Figure 1).

In the formulation of his twelve elements Borden (1964) pointed out that it is necessary to create: *«1) a list of the important elements or ingredients that make up marketing programs; 2) a list of the forces that bear on the marketing operation of a firm and to which the marketing manager must adjust in his search for a mix or program that can be successful».*

McCarthy's marketing mix has been widely adopted through time by managers and academics, becoming a key element of marketing theory and practice. This wide diffusion may be justified on the basis of its simplicity of use and understanding which makes it a useful tool both for marketing decisions and teaching. (Grönroos, 1994; Yudelson, 1999; Jobber, 2001). The concept of marketing mix is considered in the Managerial School of Marketing (MSM) (Sheth

et al., 1988) as an operative tool to achieve marketing objectives, in particular as a formula for those marketing factors that can be controlled by   the enterprise in an uncontrollable competitive environment (Varaldo, 1996).

As the MSM evolved through various stages in time, from the marketing concept of the 1970's, through the introduction of Total Quality Management in the 1980's (Yudelson, 1999), and relationship marketing in the 1990's, to today's adaptation to the digital context, the marketing mix has always been matter of discussion, both between managers and academics.

There is no doubt that the changes in the social and economic environment, and the consequent transformation of the competitive arena, have a strong impact on the marketing mix. The digital context, in particular, is where the original version of marketing mix shows major limitations.

The interaction with the customer and the communication capabilities of Internet were unimaginable in the 1960's. The 4 Ps were created for a manufacturer context. Nevertheless the adaptive capability of the 4Ps allow their application in competitive contexts that are significantly different from those for which they were created. The question which this paper aims to underscore is: "*Is it possible to create a new list of elements that can adequately modify the traditional mix to fit in new digital contexts?*".

There are two different approaches among researchers regards the way to change the traditional marketing mix. Part of the researchers (which we call "*conservatives*") assert that the 4 Ps may continue to be the dominant paradigm of marketing mix in digital contexts, since it is sufficient to change the sub-mixes within each P adding and/or deleting some factors in order to adapt to the new scenario. Other authors (which we call them "*revisionists*") suggest that the 4 Ps' framework is now obsolete and propose to add other elements and /or to change the elements of the mix. Both approaches give significant motivations to support their conclusions. This paper aims to clarify these motivations through a review of the main literature on the subject.

1.2 Objective and delimitation of research

This study delivers a literature overview and classification in order to give a picture of the current standing of the debate about the convenience of adopting the traditional marketing mix in digital environments. The paper doesn't want to give an answer to this question, but to highlight some relevant aspect to be considered in the debate.

The most important limitation of this work is that it reviews only academic opinions published in research papers and academic textbooks, with no consideration of field experience. The paper underlines the need for further research on the issue.

2. New marketing mix for the digital business environment: the revisionists' view

There is a wide range of studies and research which stems from the need to find a new paradigm for operative marketing which, surpassing the 4 Ps, can define more specifically the marketing levers. This stream of research, which we call "revisionist", asserts the need for a radical reconceptualization. The main argument against the 4 Ps is that the model is internally oriented; this limitation leads to the lack of customer orientation and the insufficient attention to the relationship with customers (Möller, 2006; Popovic, 2006, Constantinides, 2002 a, b). Schultz (2001) points out that in today's marketplaces there is the need for a new externally oriented paradigm which considers the network system view. A common factor in all the "revisionist" e-marketing mix literature examined is the perception of the need for a more explicit customer orientation. This limitation includes all the aspects of today's marketing, nevertheless it has a particularly strong repercussion in Internet marketing, where interactivity is regarded as a crucial aspect.

It is interesting to notice that, in spite of these criticisms, the majority of the "revisionists" authors reviewed agree to include the 4 Ps in their marketing mix models, with few exceptions.

Lawrence et al. (2000) propose to add to the traditional 4 Ps' mix other two Ps, which have been debated in the marketing mix literature since several decades: people and packaging; this mix is then included in a 5 Ps marketing concept: paradox, perspective, paradigm, persuasion and passion. In the Italian literature, Prandelli and Verona (2006) propose a 3 Cs model, where each C contains some key elements: content (Web site and platform), community (interaction platform and relational capability), commerce (including the 4 Ps: product, price, place and promotion); while Pastore and Vernuccio suggest a 3C+I (interface) model where the 4 Ps are integrated and recontextualized in the on-line environment as described in figure 2.

Kalyanam & McIntyre (2002) include the 4 Ps inside their $4P+ P^2+C^2+S^3$ model in a wider operative context which, thanks to the three-dimensional representation, can give a more complete taxonomy of the elements forming the mix, as represented in figure 3.

Chen (2006) highlights the importance accorded to the environment and interaction in the model proposed by the Chinese researchers of National Taiwan University (1999), which considers 8 Ps, four of which are the traditional Ps (figure 4).

In the 8 Ps' model:

– Precision refers to the increased accuracy of the selection process of the target segment and to market positioning in digital contexts, thanks principally to database management systems;

– Payment systems must be secure and easy for customers to use;

– Personalization concerns the possibility to create a flexible interface, which is able to adapt to customers' needs and wills;

– Push and Pull regards the choice of trade-off among active communication policies (push) and communication on users' demand (pull).

While these models include the traditional 4 Ps as their core elements, other authors propose entirely different mixes. Chaffey et al. (2000) assert that the Internet calls for a change of the traditional marketing mix and spot eight critical issues to be considered in marketing planning at the strategic level: audience, integration, marketing support, brand migration, strategic partnership, organization structure and budget. Also the Web Marketing Mix Model of Constantinides (2002a) extends the mix to strategic and business organization levels and suggests a 4S model including the following elements:

– Scope, of strategic relevance includes: strategic objectives, market analysis and potential, stage of e-commerce maturity, strategic role of e-commerce for the organization;

– Site, has operational value and involves interface issues;

– Synergy, has organizational significance including the integration among bricks and clicks aspects of the company's business model;

– System, concerns the management of the Web platform, the data warehouse and the security systems.

3. Maintaining the 4 Ps in digital contexts: the conservatives' view

While it is not possible to ignore the need to adjust the marketing mix to the changes in the society and the market produced by the diffusion of digital technologies, Internet in particular, a less numerous, but theoretically consistent, part of the literature on the topic asserts that the 4 Ps' model is perfectly able to adapt and to continue to be the dominant paradigm in these new contexts (Aldridge et al., 1997; Peattie, 1997; O'Connor & Galvin, 1997; Bhatt & Emdad, 2001; Allen & Fjermestad, 2001; Möller, 2006).

Möller (2006) points out how the "internal orientation" criticism regards the 4 Ps is based on a misconception of the relation between the marketing mix and the marketing concept. For Möller the 4 Ps paradigm is perfectly coherent with the marketing concept which states that "marketing activities should be based on identification of customer needs and wants", also implying the selection of the explicit information to be gathered from the customers in order to be able to fulfil their needs, through segmentation, product differentiation and positioning.

Peattie (1997) pointed out how the new communicative capabilities supplied by the digital technologies are radically changing marketing in several sectors, but the marketing mix approach is able to adapt to the new needs: product, with the introduction of co-design with customers; price, with higher levels of transparency; place, with the creation of new ways to reach customers; and promotion, thanks to the new interactive capabilities. Bhatt & Emdad (2001) see the empowerment of the 4 Ps since the virtual value chain is internally transforming each P by adding new dimensions: personalized information in the Product, transparency and personalization of Price, direct delivery for Place, improved flexibility for Promotion. O'Connor & Galvin (1997), while assuming that the traditional marketing mix paradigm needs to evolve, propose that digital technologies can be useful to improve the mix's functionality maintaining the 4 Ps as the basic instrument for Internet marketing.

Among the changes brought to each of the 4 Ps by the digital technologies, the following are the most relevant:

– Product. The product should nowadays be redefined as: *all the benefits through time that the user obtains from the exchange* (Yudelson, 1999); this definition applies to the digital context. From the supply side, product policies can gain great benefits from the capability of Internet to engage the consumer in long term relationships that lead to the development of new products. The interactive and connective potential of Internet leads to a new product concept: the "virtual product" (Valdani, 2000; Pastore & Vernuccio, 2004). The virtual product is seen as the union of tangible and intangible aspects, which is adapted and personalized according to the variety and variability of individuals' preferences by customizing the product with the active help of consumers (von Hippel, 2005; Dominici, 2008b). A product can be delivered from producer to consumer in digital form (mp3 for music, avi for movies, pdf for books and magazines, and so on) thus contextualizing their fruition in the digital framework (Pastore & Vagnani, 2000). From the demand side, the capability of retrieving information plays a key role (Smith & Chaffey, 2001). Andreini (2006) underlines the effectiveness of Nelson's classification (1970) which divides products in two categories: "search", when it is possible to obtain complete information before the purchase and "experience", when it is not possible, or too expensive, to gather

information before the use of the product. Internet has been of great help for the purchasing process of "search" products, thanks to the easiness and affordability of retrieving information online, that, together with the increasing quantity of information and the interactivity of Web 2.0, has made it also possible to transform experience products into search products (Klein, 1998; Andreini, 2006).

– Price. The price should be redefined as *everything given by the acquirer in terms of money, time and effort given to obtain the product* (Yudelson, 1999). From the consumer's perspective, the main benefits of the Web concern the reduction of information asymmetries that allow the consumer to compare prices in real time and gain more transparency (Bhatt & Emdad, 2001). Moreover, the implementation of Artificial Intelligent Agents enable to make automatic and tailored comparisons of prices and features, reducing the price in terms of time and effort (Dominici, 2008a). From the producer's point of view, Internet makes it possible to modify prices in real time; this could lead to dangerous price competitions (Allen & Fjermestad, 2001) with the consequent reduction of profit margins. To avoid this, online communication must be directed towards qualitative aspects and differentiation attributes of the product.

– Place. Can be defined today as: *everything that is done and necessary to smooth the process of exchange* (Yudelson 1999). The application of this definition to the digital context urges to add the element of purchasing process as a key feature of place within the mix. The process must be smooth and easy, while building relations with customers at the same time. The physical place becomes virtual and includes intangible aspects of transaction. Bhatt & Emdad (2001) underline that the main contribution of Internet to business is not the mere possibility of selling products online, rather its capability of building relations with customers. The interactive capabilities of Internet allow the implementation of more efficient and effective systems of digital Customer Relationship Management (e-CRM). Internet enables to obtain information which can be used to manage customers, thanks to the data gathered through the registration of users to the company's Web page and the online purchase data for each customer. This helps to maintain the service level and improve the management of the customer portfolio (Fjermestad & Romano, 2003; O'Learly et al., 2004).

– Promotion. Can be redefined in order to include: *all of the information that is transmitted among parties* (Yudelson, 1999). This definition includes also the interactive aspects of digital communication. The Internet is different from other mass communication media (Morris & Ogan, 1996). Infact, while it is surely a medium which can reach a numerous and dispersed audience, it differentiates itself from the other media regards interactive and multimedia features. Hoffman & Novak (1997) point out that, in the Web environment, the one-to-many concept loses its cogency, while the new many-to-many paradigm takes its place. Personal interaction allows to issue messages directed to a specific individual with a degree of flexibility which no other media can be capable of (Bhatt & Emdad). This also makes it possible to hit the target while he/she is in a situation of relax and confidence (defined as "low involvement" by Krugman, 1965) similar to that of television, but with higher informative capability, due to the multimedia features of the Web communication. The aim of online communication is not just to advertise a product, but to built a purchase relation and create a perception of trust in the customer. Interaction, multimedia and relationship should be included as elements of the P of promotion.

4. Conclusions and further research

The 4 Ps marketing mix was created in the early days of the marketing concept when physical products, physical distribution and mass communication were dominant. Today, with the new business environment created by the different and empowered capabilities of digital contexts, the marketing mix paradigm increasingly becomes object of criticisms. Although the mix has the capacity to include a wide set of variables in order to adapt to a large range of mutations in the business environment, many authors believe it is obsolete and inadequate for the 21st Century. The search for a new dominant paradigm for operative decisions in digital environments is still in progress. We are still far from finding a new widely accepted standard able to fully substitute the 4 Ps' mix after almost half century. The reason underlying this lack of a new universally accepted model is probably the imperfect comprehension of the full potential of the new digital technologies for business and the insufficient emphasis given to case study research on marketing operations. On-line companies have still to reach their full maturity, which industrial enterprises had reached when McCarthy formulated the 4 Ps. Until now, after almost fifty years, it is apparent that, despite the controversies between "conservatives" and "revisionists", the basic construction of 4 Ps is still valid and, with some extension and adjustment, is still the core of operative decisions.

The conservatives' view described is based on the possibility to change the elements inside each P of the traditional mix. As Borden (1964) formulated twelve elements through evidence emerging from empirical practices and case histories in the 1960's, there is a need for research on this topic also today.

When e-marketing research and practice will arrive to a deeper comprehension and maturity in the digital environment, we will probably see a new marketing mix paradigm which will definitely put to the traditional 4 Ps to rest and give light to a new widely accepted paradigm for marketing operations.

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Product	Place
Product Planning	*Channels of Distribution*
Branding	*Display*
Packaging	*Physical Handling*
Servicing	*Fact Finding and Analysis*
Price	**Promotion**
Pricing	*Personal Selling*
	Advertising
	Promotions

Figure 1. McCarthy' 4Ps and the 12 policies of Borden

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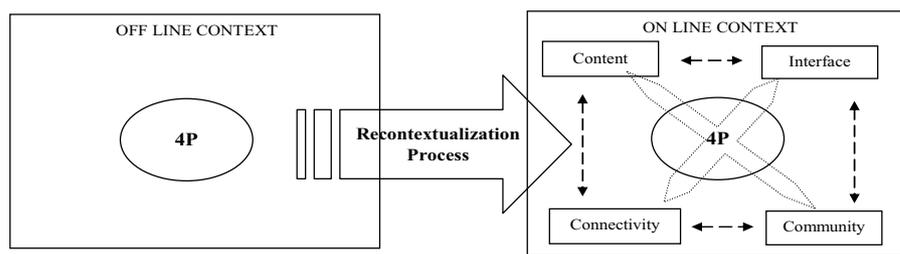
Source: Pastore & Vernuccio, 2004

Figure 2. Contextualization of the 4Ps in the 3Cs+I
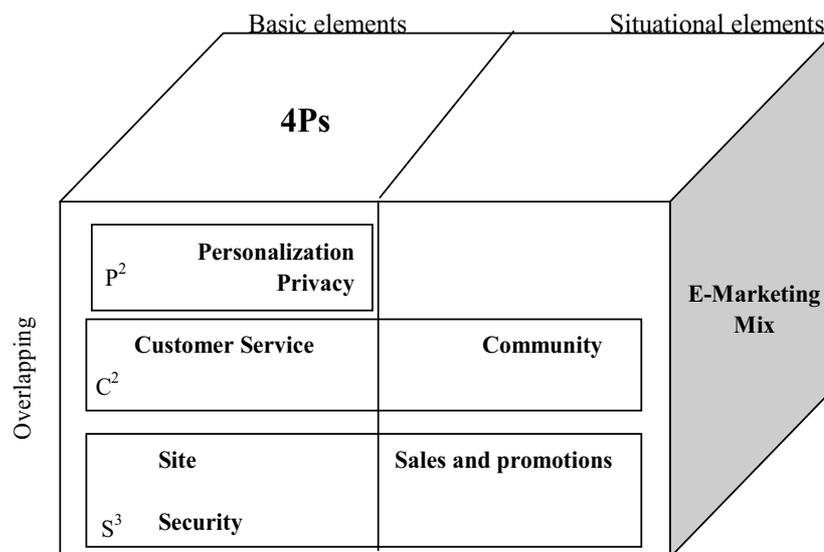
Source: Kalyanam & McIntyre, 2002, p.496

Figure 3. The 4P+ P2+C2+S3 model
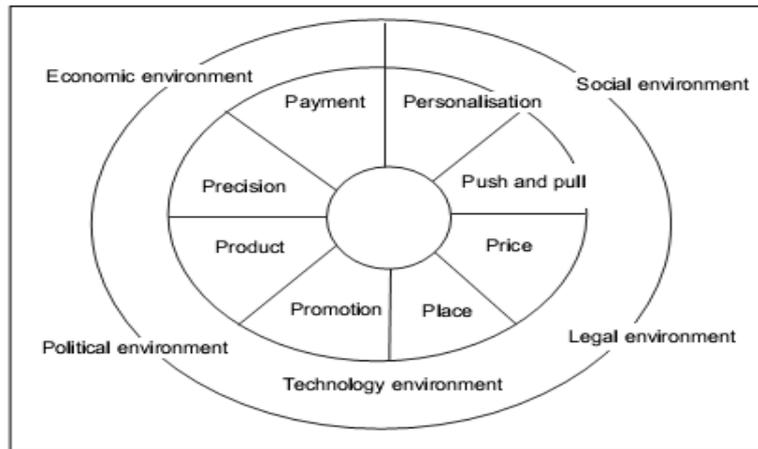
Figure 4. The 8Ps' Internet marketing mix model

Source: Chen, 2006, pp. 410.

The Paths of Enterprises Independent Innovation

Based on Products Upgrade

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Abstract

On basis of the interactive relationship between products upgrade and independent innovation, the possibility of the paths of enterprises independent innovation based on products upgrade are studied. Then, four directions of products upgrade further and the paths of enterprises independent innovation are brought out. Finally, the paper analyzes the impact of the quality of entrepreneurs, R & D personnel, the level of effort, and the incentive mechanism on the paths of enterprises independent innovation based on products upgrade.

Keywords: The accumulation of knowledge, Products upgrade, Independent innovation

1. Introduction

The ability of enterprises independent innovation is the basic of the capability of our country independent innovation. It affects our country's comprehensive national strength and economic security. However, compared with developed countries, our enterprises are lack of the ability of independent innovation and lack of the core technologies with independent intellectual properties. The fund of R & D intensity is more than 2% in the most developed countries and it is even more than 4% in Israel in 2007. It is an important guarantee for innovation capability under a high level of R & D input intensity in these countries. However, the fund of R & D intensity is only 1.49 percent in China. It is a large gap between China and developed countries. It results in that our enterprises are lack of necessary accumulation of knowledge for independent innovation because they don't have enough R & D fund in China. So how to improve the capability of independent innovation of our enterprises is a question which needs to be solved immediately.

In terms of independent innovation, some scholars have studied the path of enterprises' transformation from introducing advanced technology to independent innovation. Zhang Xiao-juan(2003) argues that we can enhance the industry technological level and innovation capability on the basic of making full use of external technical resources through the ways of "bringing in", "going out" and more new resources organization (JIANG X J., 2004). Song Yun and Zeng Jin-ze (2007) analyze enterprise technology study from the four areas: technology trajectory, absorption capacity, technology transfer and dynamic study and they find the required time that enterprises change from imitation innovation to independent innovation is decided by the effect of enterprise study and absorption capacity (SONG Y and ZENG J Z., 2007) . Qian Jin (2006) consider state-owned enterprises must set up long-term investment mechanism and ensure that there are some main characters in a research teams before realizing independent innovation (QIAN J., 2006). Xie Xue-mei and Zeng Sai-xing (2008) debate it is the most important internal fact of lacking high-quality technical personnel that restricts enterprises independent innovation by the way of questionnaire and focused interviews (XIE X M and ZENG S X., 2009). Bi Ke-xin and Li Bo-zhou (2007) find it is one of most important ways for manufacturing to enhance the capability of independent innovation if enterprises can make products innovation and processes innovation concerted development (BI K X, SUN D H, and LI B Z., 2008). Ji Jian-yue et al (2007) argue that our electrical appliance enterprises should cultivate core competitive strength on R & D capability, manufacturing capability,

marketing capability, input innovation resources and management innovation five fields through analyzing the capacity of independent innovation of Hisense Group (JI J Y, GUO C J and ZHANG Z L., 2006). From the perspective of products upgrade, we will discuss suitable paths of independent innovation for our enterprises.

2. The interactive relationship between products upgrade and independent innovation

The basic skills, experience and the capacity of continuing improvement play a very important role during the capability of enterprises independent innovation being formation. Products upgrade can help fully accumulate basic technology and effectively exert the advantage of enterprises' resources and capabilities. So it is conducive to change unfavorable situation that our country has been neglected to accumulate basic technology for a long time during products upgrade (MAO Y S and WANG J C., 2006). There are following advantages for independent innovation based on products upgrade.

2.1 Reduce innovation risk and improve the rate of innovation's success

There are 4 innovation risks that enterprises are facing: technology risk, market risk, management risk and the external environment risk. Because the producers of enterprise do not identify the potential the demand of consumers clearly, their productions of innovation may not be recognized by the consumers. It increases the risk and the difficulty when the productions of innovation are put on the market. However, the independent innovation based on products upgrade can reduce market risk and improve success rate, because there are lots of similarities between the products that have been upgraded and the original products, even they use the same core technology. Besides products upgrade is only to update the technology partly, and extend new features.

2.2 Alleviate the pressure of market competition

The essence of products upgrade is to increase products differentiation between our company and our competitor, and increase our products' advantage such as cost, function, features and so on. The more products differentiation is, the higher the price will be. So we will get more profits and we will avoid getting into the trouble of price war. Haier designs the Oxygen Bar air-conditioning in 2003 by products upgrade, in order to meet consumers' needs at the same time avoid the occurrence of air-conditioned disease. Haier avoids price competition among the competitors and enjoys high profits by products upgrade.

2.3 Fully use existing resources and improve products' value-added

Because the products which have been upgrade are similar with the original products, on the production side we can purchase the same raw materials, and use the similar technology to manufacture productions. On the market side we have similar clients, the same distribution channels, and the same management skills. These have contributed to share resources, receive enormous economies of scale, and reduce overall operating costs.

At present, most industries of our country, including some high-tech manufacturing, still belong to low-value-added industrial value chain. However, it is obvious that the essence of products upgrade is to enhance the original products' value. So we can change the status quo that our country enterprises' products are low added value and promote industrial structure upgrade by the independent innovation based on products upgrade.

2.4 Guide the consumers' needs; stimulate the development of related industries

Compared with the original products, the products that have been upgraded have more advantages. Consumers are more inclined to purchase products which have been upgraded, when there is little difference in terms of price. So it plays a role of leading consumers' needs. At the same time, the sale of enterprises that have realized independent innovation based on products upgrade tends to increase. So it makes enterprises to expand their current production scale to cope with the increased products sale. Finally enterprises expand the procurement of raw material and the increase of raw material will directly drive the development of upstream enterprises.

3. The path of independent innovation based on products upgrade

Integrating the existing literature on the models of independent innovation (FORBES N and WIELD D., 2001), we bring forward the path of independent innovation based on products upgrade (Figure 1). Generally, the path of enterprise independent innovation based on products upgrade includes 3 phases: accumulation of knowledge → products upgrade → independent innovation. Specifically, the path of independent innovation based on products upgrade, involving 4 kinds of accumulation of knowledge combinations and 4 kinds of products upgrade combinations.

3.1 Accumulation of knowledge

The accumulation of knowledge is that enterprises allocate internal knowledge and resources, absorb external knowledge, integrate and activate the internal knowledge and resources to generate new knowledge in order to enhance the capacity of products upgrade. Enterprises with R & D strength may cooperate with the domestic technology to accumulate knowledge and realize innovation on the basic in-house R & D. If they encounter problems that they can not solve by themselves, enterprises can introduce, digest and absorb advanced technology and then realize the goals of

knowledge accumulation and innovation. All in all, the ways that enterprises acquire knowledge include:enterprise in-house R & D (joint R & D) + domestic technology cooperation; enterprise in-house R & D (joint R & D) + domestic technology cooperation+ introduction, digestion and absorption technology; enterprise in-house R & D (joint R & D) + domestic technical cooperation + introduction technology + in-house digestion and absorption technology; enterprise in-house R & D (joint R & D) + introduction technology + cooperative digestion and absorption technology.

3.2 Products upgrade

As mentioned above, products upgrade plays a role of reducing R & D risks during enterprises' independent innovation, and the direct performance of products upgrade includes expanding the features of existing products,enhancing quality and life of products, making leading products design and reducing the cost of production and use.

Expand the features of existing products. Existing products have been recognized by markets and products upgrade is only to expand existing products' feature. So it will not change its core technology and improve the rate of innovation's success. For instance, Newman has been developed two MP3 product lines with features of flash memory and hard drive, more than 40 kinds of products through expanding products' additional features. These products have different additional features, suitable for different types of consumers, which make Newman become the preferred MP3 brand in China.

Insert Figure 1 here

Enhance quality and life of products. High products' quality and long service life will bring a brand effect to consumers. If an enterprise can improve its products' quality and extend its products' service life, its products will be able to bring a high-quality effect to consumers, gradually become a brand in the industry. Then the enterprise will be more competitive strength and gain more profit in the long run.

Make leading products design. The so-called design is to do everything possible to make a product conceptualization and have ideal characteristics. These characteristics correspond to different level of factors, including aesthetic factors that correspond to the emotion, as well as the performance factors that correspond to function. A new design requires "the match between technology and market" (CAO L S and JIANG Y., 2006). The products designed finely can be distinguished from other similar products easily, and consumers have a preference for them, so the products designed finely can enhance consumers' loyalty, in other words they can enhance the profitability of enterprises.

Reduce the cost of production and use. In the same market, if the substitutes' quality and performance are almost the same, price becomes competitive advantage in the market. However, the factor that decides price is production cost. So, enterprises can take measures to upgrade products to control production cost in order to reduce products' price. In the consumer's point of view, reducing products' use cost is very important. If the product has a long service life, consumers will choose the product with low use cost even if it has a high purchase cost.

3.3 Independent innovation

Enterprises have enough knowledge, and a certain amount of R&D strength, they can achieve independent innovation based on four kinds of products upgrade. If an enterprise brings products upgrade into effect successfully, and products have been recognized by consumers in the market, the enterprise's independent innovation is successful. In contrast, enterprise's independent innovation is a failure. At this moment, the enterprise should identify where the problem of the independent innovation is.

4. The effect of independent innovation's factors

4.1 The quality of enterpriser

Entrepreneurs are the core of independent innovation, so the capacity of entrepreneurs' technology identification, the ability of combining the technology factors with management, capital, business and other factors effectively are the key to the success of enterprises' independent innovation (HAN L M and ZHAO X H., 2006). If an entrepreneur has a nicer sense of innovation, he will be able to create a good atmosphere for independent innovation in the enterprise, and he can lead his employees to transform the invisible pressure of market competition into products upgrade's power. If an enterpriser can constitute a scientific innovation strategy, and grasp the direction of products upgrade, he will enhance the rate of independent innovation's success.

4.2 R & D personnel

R & D personnel are very important to the capability of enterprises' independent innovation. Not only they relate to the accumulation of knowledge, but also relate to the products upgrade. Although the number of R & D personnel increases every year, however, the ratio of R & D personnel in every ten thousand people in large and medium-sized industrial enterprises is still very low. Averagely, there are only 85.8 R & D personnel in ten thousand people in 2007. It is shown that the lack of R & D personnel has become an enormous obstacle to enterprises' innovation. Therefore, the government and enterprises should take active measures to attract technical talents and promote enterprises to build an

effective human capital management system as soon as possible.

4.3 The level of effort

The level of effort has an effect on studying knowledge, especially on tacit knowledge. So it is very important of the level of R & D personnel's effort to the capability of enterprises' independent innovation. If our enterprises' R & D personnel all have a very high level of effort, then, whether in the accumulation of knowledge or products upgrade, Our enterprises will shorten the gap with advanced foreign enterprises.

4.4 The incentive mechanism

The incentive mechanism can improve R & D team's efficiency of learning and innovation and affect the ability of enterprises' independent innovation. We can also set up performance appraisal system. In accordance with the performance of employees, enterprisers take positive incentive and negative incentive combined measures to give the excellent staffs material and spiritual rewards, and punish staffs with bad quality by the bottom elimination system. Lenovo is a company which implements performance appraisal system and failed staffs in the examination will enter the district of bottom elimination. Meanwhile, Lenovo also cultivates reserve cadres in order to replace failed staffs. In this incentive system, every employee of Lenovo must do their best to avoid entering the district of bottom elimination. It plays a very important role in the development of Lenovo.

5. Conclusion

With increasing competition, enterprises must learn independent innovation in order to survive. Independent innovation is an essential way to cultivate enterprises' core competition strength. Facing with the situation of our enterprises lacking of independent innovation, we analyze the interactive relationship between products upgrade and independent innovation, then we bring forward paths of independent innovation based on products upgrade and analyze every aspect of the paths of independent innovation. Finally, we talk about the effect among entrepreneurs' quality, the number of R&D personnel, the level of effort and incentive mechanism on independent innovation based on products upgrade.

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Figure 1 independent innovation based on products upgrade
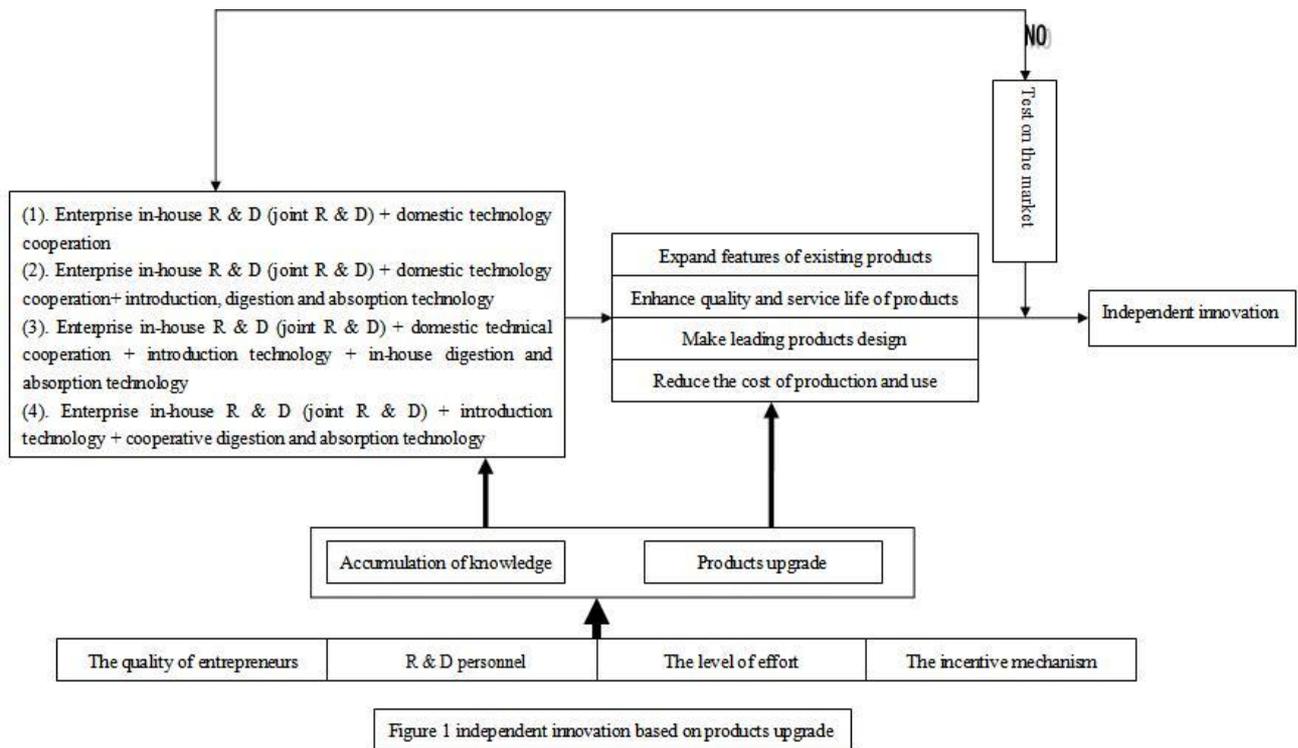
A Study of Debt Structure Preference Based on Controlling

Shareholders' Benefits of Control

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Abstract

Taking data of all A-share listed companies in Shanghai Stock Exchange and Shenzhen Stock Exchange from 2002 to 2006 as samples, this paper makes an empirical study on the debt structure preference of enterprises in which controlling shareholders have the right of control. Results show that these enterprises: (1) prefer to short-term debt financing concerning the debt maturity structure; (2) prefer to financing by loaning from banks concerning the debt type structure; (3) prefer to high-priority debt structure concerning the debt priority.

Keywords: Debt structure preference, Benefits of control, Controlling shareholder, Creditor

Former studies of domestic and foreign scholars show that the debt structure is affected by many factors, including corporate scale, debt scale, assets maturity, growth, and investment chance (Barclay.M.J, & Smith.Jr, 1995, p609-631; Guedes. J, & T. Opler, 1996, p. 1809-1833). In perspective of corporate governance, it is mainly affected by managerial stock ownership and stock right structure. Fama (1980) supplies proofs for the opinion of "the more effective the board is, the more short-term debts, the managerial level chooses". He points out that short-term debt is a powerful tool for supervising the managerial level. Besides, short-term debt gives creditors the flexibility of supervising the managerial level effectively by small efforts (Fama,E. F., 1980, p. 288-307). Datta et al (2005) verifies the effects of managerial stock ownership on enterprises choosing the debt maturity structure. Researches show that there is a negative correlation between the proportion of managerial stock owership and the debt maturity (Datta S, Datta A I & Raman K., p. 2333-2350). Xingquan Yang and Huimin Song (2006) agree that because enterprises with concentrated stock right can control the managerial level effectively, they choose less long-term debts than enterprises with separate stock right (Xingquan Yang & Huimin Song, 2006, p13-16). Recently in China, the influences of the right of control over the debt financing start to gain more attentions. Shuzhen Mao (2008), based on the institutional background of Chinese government interference, studies the relationship between the motivation of the ultimate control person pursuing for private interests from the control right and the debt maturity structure of listed company. Results show that the stronger the motivation is, the higher the enterprise's short-term debt ratio (Shuzhen Mao, 2008). This paper tries to study the effects of controlling shareholders on enterprises' preference for debt maturity structure, debt type structure, and debt priority structure in order to further probe into the relationship of corporate governance and debt structure.

1. Theoretical analysis

The right of control can be realized by indirect control. Under the "one-share one-vote" principle, the right of control rises along with the increase of ownership. Therefore, the right of control is in the hand of controlling shareholders. To master the right of control is inevitably accompanied with benefits of control. The benefits of control are not from investment, which are the total excessive profits obtained by subjects who master right of control over an enterprise. As rational men, controlling shareholders will choose the debt structure that benefits themselves a lot in order to obtaining the maximum benefits of control.

Controlling shareholders' benefits of control are mainly realized by these means: Occupy enterprises' capitals by related transactions, take listed companies' assets that are more than loans as guaranty or mortgage, and sell products to enterprises at higher prices or buy products from enterprises at lower prices. All these can make the transaction price straying from the reasonable price to a great degree, which will benefit the controlling shareholders a lot. Therefore, in perspective of debt structure, enterprises with controlling shareholders prefer to choose short-term debts that supervise and restrict less on corporate related transactions and guaranties. As for choosing the debt maturity structure, more

restrictions concern long-term debts. Therefore, enterprises with controlling shareholders prefer to short-term debts. Concerning the choice of debt type structure, more complicated procedures are needed for issuing bonds. And the examinations and requirements for enterprises are higher. So, enterprises with controlling shareholders prefer to apply loans from banks. In perspective of debt priority structure, the higher the debt priority grade, the more the creditors' interests can be guaranteed. Then, the supervision on enterprises will become weak and controlling shareholders take the assets that are more than listed companies' loan scales as guaranties or mortgages. Therefore, enterprises with controlling shareholders prefer to the debt with higher priority grade.

2. Design an empirical study

2.1 Sample selection and data sources

In China most listed companies are reformed from state-owned enterprises. The rights of control of state-owned enterprises are completely in the hand of managerial level. Contrarily, in non-state-owned listed companies, for enterprises with relatively concentrative stock right, because of the information asymmetry derived from the imperfect of regulatory and supervision system, the controlling shareholders and the managerial level control the information that is out of the hand of more small and medium-sized shareholders and creditors. Non-state-owned enterprises may also face the problems of managerial level obtaining benefits of control. But compared with controlling shareholders obtaining benefits of control, these benefits of control tend to be less important because the right of control is mainly in the hand of controlling shareholders. In this paper, the non-state-owned listed companies with relatively concentrative stock right is sorted into the enterprises in which controlling shareholders control.

All data are from the CSMAR database, CCER Chinese financial database, and Resset database supplied by Guotaian Research Service Center. Some are processed manually based on the annual reports of listed companies in Shenzhen Stock Exchange and Shanghai Stock Exchange. This paper makes selection from samples: (1) delete banking financial listed companies; (2) delete companies whose annual auditing reports at the current year are non-standard and unpreserved opinions; (4) delete the listed companies that are listed at the current year; (5) delete companies with incomplete data.

2.2 Select variables

This paper adopts the common linear regression model for testing the causation relationship of variables. Furthermore, because the empirical study concerns many independent variables and dependent variables, we choose the PLS2 regression model that is for multiple variables for multiple variables.

(1) Explained variables (dependent variables)

Because the debt structure can be sorted into three types, as we set up a regression model of debt structure and make an empirical study based on the benefits of control, we need three regression models. Therefore, three types of explained variables are necessary.

a. Debt maturity structure: Debts can be classified into short-term debts and long-term debts. Use the short-term debts ratio to represent the debt maturity structure, namely short-term debts/total debts, SD.

b. Debt type structure: three types according to the sources of debts

Loans from banks: proportion of short-term debts, one-year long-term debts, and long-term debts to total debts (YHJK)

Commercial credit: proportion of business payable and funds received in advance to total debts (SYXY)

Bond: proportion of bonds payable to total debts (ZQ)

c. Debt priority structure: four types according to the priority of payment

Pledge and mortgage debt: proportion of pledge loans and mortgage loans to total debts (ZDY)

Guaranty debt: proportion of guaranty debts to total debts (BZZW)

Credit debt: proportion of credit debts to total debts (XYZW)

Other debts: proportion of other debts except pledge and mortgage debt, guaranty debt, and credit debt to total debts (QTZW)

(2) Explanatory variables (independent variables)

In studying the debt structure based on controlling shareholders' benefits of control, the benefits mainly include: to occupy listed companies' funds, to make listed companies to supply guaranties for debts, and to perform related transactions with listed companies. So, we take the three aspects as explanatory variables.

a. Benefits from occupying funds: to divide the net assets by the sum of the occupied funds, including business funds and non-business funds, occupied by the controlling shareholders and their related parties, namely zjzy

b. Benefits from guaranteeing from debts: to divide the net assets by the sum of guaranties offered by listed companies

for the controlling shareholders and the related parties, namely zwdb

c. Benefits from related transactions: to divide the total operating income by the income from related transactions with listed companies, namely glsy

(3) Control variables

Because enterprises' debt structure is under the influences of assets maturity, corporate scales, and debts scales and these influences can not be reflected by the benefits from control, here we take other main factors that may influence the debt structure as control variables. In specific, these variables are shown in Table 2 as follow.

2.3 Analyze the empirical results

The regression results of effects of listed companies' controlling shareholders' benefits of control on debt maturity structure, type structure, and priority structure are shown in Table 3, 4, and 5 as follow.

From the regression results in Table 3, controlling shareholders' benefits of control have a positive correlation with debt maturity structure, which means the stronger the motivation for controlling shareholders pursuing for benefits of control (the higher the benefits of control), the higher the ratio of listed companies' short-term debts. Therein, the positive correlation between the benefits from occupying funds and the debt maturity structure is the most significant (Sig. = 0.003, be significant under the 0.01 level). Then, the positive correlation between the benefits from related transactions and the debt maturity structure is stronger. And last the positive correlation between the benefits from guaranties and the debt maturity structure is weakest.

From the regression results in Table 4, the benefits of control obtained by controlling shareholders have a significant positive correlation with bank loans (be significant under the 0.01 and 0.05 level respectively). Controlling shareholders' benefits of control have no significant impacts on bonds.

According to the regression results in Table 5, among the benefits of control obtained by controlling shareholders, there is a significant positive correlation between benefits from guaranteeing for debts and pledge and mortgage debts, and so does between benefits from occupying funds and related transactions and guaranty debts (be significant under 0.01 level). Besides, related transactions exert effects on other debts' priority structure. In other words, there is a relatively significant negative correlation between related transactions and credit debt (be significant under 0.01 level). There is a positive correlation between related transactions and pledge and mortgage debts. The negative correlation between related transactions and other debts is not significant. It means that there is a significant correlation between controlling shareholders' motivation of obtaining benefits by occupying listed companies' funds and guaranty debt. The motivation of obtaining benefits from guaranteeing for debts gives a priority to the pledge and mortgage debt in debt priority structure. The motivation of obtaining benefits from the related transactions makes controlling shareholders prefer to guaranty debt rather then credit debt. The motivation of obtaining benefits from related transactions has certain effects on controlling shareholders choosing the pledge and mortgage debt and the credit debt. But the effects are not significant.

3. Conclusion

(1) Concerning the debt maturity structure, controlling shareholders prefer to short-term debts in order to obtain more benefits of control.

(2) Concerning the debt type structure, controlling shareholders prefer to applying loans from banks to certain degree. For listed companies with controlling shareholders, the debt type structure fluctuates dramatically during the sample term, what may be caused by the incomplete data of samples,

(3) Concerning the debt priority structure, controlling shareholders' behaviors are clearer. They prefer to debts with higher priorities rather than that with lower priorities.

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Table 1. Yearly distribution of sample enterprises with controlling shareholders.

Year	2002	2003	2004	2005	2006	Total
Number of samples	91	105	13	139	150	498

Table 2. Name of variable and index calculation

Variable	Name of variable		Signal	Variable description
Explained variables	Debt maturity structure	Ratio of short-term debts	SD	Short-term debts / Total debts
	Debt type structure	Loans from banks	YHJK	(Short-term debt + long-term debt) / Total debts
		Commercial credit	SYXY	(Business funds payable + funds received in advance) / Total debts
		Bond	ZQ	Bonds payable / Total debts
	Debt priority structure	Pledge and mortgage debts	ZDY	(Pledge debt + mortgage debt) / Total debts
		Guaranty debt	BZZW	Guaranty debt / Total debts
		Credit debt	XYZW	Credit debt / Total debts
		Other debts	QTZW	Other debts / Total debts
Explanatory variables	Controlling shareholders' benefits of control	Funds occupation	ZJZY	The sum of funds occupied by controlling shareholders and related parties / Net assets
		Guaranty for debt	ZWDB	Guarantees for controlling shareholders and related parties / Net assets
		Benefits from related transactions	GLSY	Total income from related transactions / Total operational income
Control variables	Assets maturity		AM	Current assets / Total assets
	Corporate scale		SIZE	Total assets' natural logarithm
	Debt scale		DB	Total liabilities / Total assets

Table 3. The regression results of debt maturity structure based on controlling shareholders' benefits of control.

	B	Std. Error	t	Sig.	VIF
Benefits from occupying funds	.060	.020	2.987	.003	1.068
Benefits from debt guaranty	.091	.052	1.733	.084	1.062
Benefits from related transactions	.021	.010	2.058	.040	1.043
Assets maturity	.190	.026	7.193	.000	1.023
Corporate scale	.031	.006	5.076	.000	1.020
Debt scale	.486	.023	21.305	.000	1.058
R Squared =.565 (Adjusted R Squared = .560); F=106.237, p=0.000					

Table 4. The regression results of debt type structure based on controlling shareholders' benefits of control.

	Loans from banks		Commercial credit		bond	
	B	t	B	t	B	t
Benefits from occupying funds	.044**	2.225	-.001	-.075	-.001	-.295
Benefits from debt guaranty	.109**	2.124	-.033	-.722	-.004	-.407
Benefits from related transactions	.035***	3.512	-.012	-1.333	.000	-.342
Assets maturity	-.100***	-3.826	.214***	9.200	-.004	-.874
Corporate scale	.033***	5.450	.013**	2.529	.003***	2.629
Debt scale	.349***	15.634	.242***	12.257	.001	.203
Adjusted R2	.433		.341		.004	
F	55.270***		37.778***		1.278	
Sample	498		498		498	
***, ** and * means being statistical significant under the 0.01, 0.05, and 0.1 level respectively (2-tailed).						

Table 5. The regression results of debt priority structure based on controlling shareholders' benefits of control.

	Pledge and mortgage debt		Guaranty debt		Credit debt		Other debts	
	B	t	B	t	B	t	B	t
Benefits from occupying funds	-.003	-.145	.057***	3.022	-.003	-.282	-.011	-.566
Benefits from debt guaranty	.153***	3.207	-.020	-.409	-.008	-.332	-.052	-1.074
Benefits from related transactions	.015*	1.639	.038***	3.928	-.015***	-3.053	-.015*	-1.608
Assets maturity	-.030	-1.206	-.029	-1.139	-.017*	-1.301	.185***	7.390
Corporate scale	-.008	-1.399	.024***	4.155	.015***	5.000	.018***	3.128
Debt scale	.161***	7.726	.160***	7.434	-.007	-.658	.278***	13.100
Adjusted R2	.142		.187		.077		.336	
F	14.754***		19.991***		7.953***		42.901***	
Sample	498		498		498		498	
***, ** and * means being statistical significant under the 0.01, 0.05, and 0.1 level respectively (2-tailed).								

Leverage, Growth Opportunities and Stock Price

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Abstract

This paper examines the impact of leverage and growth opportunities on stock price reactions to seasoned equity offerings in Finland. The empirical results provide novel evidence of a negative relationship between leverage and stock price decline associated with equity offerings. In addition, the results indicate that growth opportunity is positively related to announcement abnormal return. Furthermore, we examine the effect of leverage and growth opportunities on equity offerings. It is found that high-levered low–growth firms are the worst performers at the announcement and issuance of seasoned equity offerings.

Keywords: Leverage, Growth opportunities, Finnish seasoned equity offerings

1. Introduction

Asquith and Mullins (1986), Healy and Palepu (1990), Hansen and Crutchley (1990), Eckbo and Masukis (1992), Mittoo (1996), Burton et al. (2000), Medeiros and Matsumoto (2005), Barnes and Walker (2006), Chaiporn (2008) have documented the stock price response when the firms announce a new equity issue. Their evidence, regardless of the market concerned, indicated a significant reduction in stock price upon the announcement of new equity. Previous studies have also examined the determinants of the stock price reaction such as time of equity issue (Korajczyk et al. 1991, Baker & Wurgler 2002, Barnes & Walker 2006), purpose of issue (Mann and Sicherman 1991; Barnes & Walker 2006), issuing size (Hansen & Crutchley 1990 and Mann & Sicherman 1991), issuing method choice (Chaiporn 2008), pre-issue gear-stick (Kolodny and Schuler 1985; Asquith and Mullins, 1986; Eckbo et al. 2000) , and pre-announcement positive cumulative excess return ((Masulis and Korwar 1986; Korajczyl et al., 1990; Choe et al., 1993; Denis 1994; Anand 2002).

Leverage and growth opportunities have so far received little attention in empirical studies. This paper empirically examines the stock price reaction to equity issue in the Finnish Stock Market and investigated the impact of leverage and growth opportunities on the market reaction to equity issue. There are several theories hypothesizing that leverage, growth opportunities are related to stock price response to equity issue. Raymar (1993), Dierkerns (1991) theoretically argue that a firm's existing capital structure is a determining factor in predicting stock price response to equity issue. They predict that in the presence of sufficient degree of leverage and default risk, the market reaction to equity issuance is positive. The reaction to equity issuance of a high-levered firm will be more positive than that of a low-levered firm.

In addition, the information asymmetric model of Myer and Mailuf (1984), Ambarish et al. (1987) and Cooney and Kalay (1993) and the free cash flow theory of Jensen (1986) predict that the stock price responses to new financing depend on the growth opportunities of issuing firms. The firms with higher growth opportunities should experience less value loss than firms with lower growth opportunities at the announcement of equity issue.   Earlier studies attempt to test the predictions of "growth theory" yielding the contradictory results. Dierken (1991), Pilotte (1992), Denis (1994), Burton et al. (2001) found a positive relation between market reactions to the announcement of equity issue and various proxies of growth opportunities. On the other hand, Mc Laughlin et al. (1988), Gombola et al. (1998) and Smith et al. (1992) have documented that market response to equity issuing is more negative for high- growth firms than for low-growth firms.

This paper contributes to the empirical literature in several ways. First, it provides new insights into the study of seasoned equity issue by examining the information content of the leverage and growth opportunities of the issuer. Second, most empirical work measures the effect at the time of the announcement, whereas this paper separately examines the effect at both the time of the announcement and the time of issue. Third, to ensure that the results are robust, several alternative proxies are used for the leverage level and for the value of growth opportunities.

First, contrary to the theoretical predictions of Raymar (1993), Dierkerns (1991), this paper found that leverage has a negative effect on the market reaction to equity issuance. High-levered firms perform worse than low-levered firma at the announcement of equity issuance. Moreover, equity issuance effects are non-positive regardless of which level of leverage the issuing firm has. Second, consistent with previous studies (Pilotte 1992, Burton et al. 2001) and the hypothesis that investment opportunities play a role in explaining the market reaction to equity offerings, this study documented a positive relation between growth opportunities and event-day abnormal stock returns. High-growth firms experience less value loss than do low-growth firms. Finally, when the effects of leverage and growth opportunities are examined simultaneously, it is found that the firms with high-leverage low-growth are the worst performers at the announcement and issuance of seasoned equity offerings.

The rest of paper is organized as follows. Section 2 discusses the theoretical background and hypotheses. Section 3 describes the data and methodologies. Section 4 presents and discusses the empirical results. Section 5 concludes with a summary the main findings.

2. Theoretical Background and Hypotheses

There are several theories that predict the relation between growth opportunities, leverage and stock price reaction to equity issue.

Myers and Majluf (1984) and Diekerns (1991) present an "information asymmetry" model in which the potential purchasers of securities have less information about the prospects of the firm than management, and management is more likely to issue securities when the market price of the firms traded securities is higher than management's assessment of their value. In such a case, sophisticated investors will reduce their estimate of the value of the firm when management announces a new security issue. Furthermore, the greater the potential information asymmetry between insiders and investors, the greater the revision in expectations and the greater the negative price reaction to the announcement of a new issue.

According to this model, increasing the net present value of the investment opportunity reduces the adverse selection problem of a new equity offering, thereby reducing the announcement day price drop. In this model, if new investment opportunities are profitable enough, there is no adverse selection problem and, hence, no negative stock price reaction. Thus, Myer and Mailuf predict that the stock price response to securities offerings does indeed vary with investment opportunities.

In support of the theory proposed by Myer and Mailuf (1984), Ambarish et al. (1987) and Cooney and Kalay (1993) found a positive correlation between announcement returns of the issuing firms and their growth opportunities. They also found positive market reactions to the announcement of seasoned equity offering among high growth firms. Brealey and Myers (1991) present a similar result positively relating firm valuation and the present value of corporate growth opportunities. Denis (1994) found a positive relationship between several *ex ante* measures of growth opportunities and announcement period price changes. However, there was no positive relation between announcement effects and alternative measures of *ex post* growth. He suggested that the positive relation between the ex ante proxies for growth opportunities and announcement effects were not monotonic. Rather, the results appeared to be driven by a small subset of high growth firms whose announcement effects were not significantly different from zero. On the other hand, Mc Laughlin et al. (1988), Gombola et al. (1998) and Smith &Watt (1992) have documented that market reaction to seasoned equity offerings is more negative for high growth opportunity firms than for low growth opportunities firms. They argued that high growth opportunities are associated with high level of information asymmetry and are therefore more overvalued than low growth firms, leading to more negative market reaction.

Myer and Mailuf (1984) argue that if the firm possesses high growth opportunities, the value of the firm must be high. But Mc-Laughlin et al. (1988), Gombola et al. (1998) and Smith &Watt (1992) argue that high growth firms have higher information asymmetry and so are more overvalued than low growth firms. In this paper, we find support for the hypothesis that the market's reaction to information on equity issue will depend on its assessment of the likelihood that the funds raised will be invested in positive net present value projects. Therefore, for mature firms with limited profitable investment opportunities but available cash flow, the market assessment is likely to decline in stock price because the raising of funds is perceived to create free cash flow because it is likely to be wasted on organization inefficiencies or invested in negative NPV projects. For the rapidly growing firms with profitable growth opportunities, the price change is likely to be positive because the new funds enable the firms to acquire positive NPV projects. Therefore,

Hypothesis 1: *Firms with high growth opportunities should experience less value loss than firms with low growth opportunities at the announcement and issuance of seasoned equity issue.*

Besides, changes in a firm's capital structure also convey significant new information to the market participants and thus influence stock price. For example, Raymar (1993), Dierkerns (1991) indicate that a firm's existing capital structure is a determining factor in predicting the stock price reaction to external financing. They propose that leverage can improve a firm's investment behavior by reducing the mispricing of new securities. They demonstrated theoretically that in the presence of a sufficient degree of leverage and default risk, positive market reactions to equity issuance is possible. They also predict that the impact of equity issue announcements on securities is significantly more positive for firms with higher leverage than for firms with lower leverage.

However, the seasoned equity offering event not only presents the information that the issuing firm is raising financing for a profitable new investment opportunities, but it also indicates that the issuing firm wants to decrease the leverage ratio, since leverage has a negative association with information asymmetry (Raymar 1993, Dierkerns 1991). Thus, an issuing of equity will lead to an increase in the level of information asymmetry for the issuing firm. Therefore, in this case, the marginal increase in the level of information asymmetry will be greater for the high-levered firm and will be less for the low-levered firm. Therefore,

Hypothesis 2: *A high-levered firm should experience more value loss than a low-levered firm at the announcement and issuance of a seasoned equity offering.*

The combined effect of leverage and growth opportunities of the issuing firm is also explored in this study. The higher the level of existing leverage is, the more the increase in information asymmetry is due to equity issuance, the greater is the value loss at announcement effect. And as growth opportunities theories argue, reaction to equity issuance by the firms with low growth opportunities should be more negative than that by firms with high growth opportunities. Therefore,

Hypothesis 3: *High-levered, low-growth firms should experience maximum value loss at the announcement of seasoned equity issue*

3. Sample Description and Methodology

3.1 Sample description

The sample used in this study included all announcements of common stock issuing by firms listed on the Helsinki Stock Exchange (HEX) during the period 1996-2003. The sample was identified through a search of HEX publications, the database of Daily Helsinki Stock Exchange Security Returns. The announcement day investigated is the day of the first public announcement in the press. To ensure that this was the first day that the information became public, the announcement was confirmed or corrected by reviewing each firm's official records at the HEX.

The announcement is a press release by the board of directors calling a general meeting of shareholders to approve the offering proposal. All proposals included in the sample were subsequently approved by the shareholders. Since the issue can be withdrawn after the announcement, the issue date is also considered in this study. The issue date is the first day of issue period.

During the period under investigation, there were a total of 93 announcements of new share offerings in which 82 announcements went ahead with an issue. Daily returns for these securities were taken from Thomson's database. For each issue, the daily stock returns were obtained for an estimate window of 300 trading days ending 60 days prior to the announcement day and 60 trading days after the announcement.

Table 1 shows the yearly distribution of seasoned equity offering in Finland during the sample period and the industry classifications of SEOs firm in the sample. Panel A of Table 1 shows that the number of Finnish issuing firms increased over the time period, especially the in period 2000-2003. Panel B of Table 1 shows the distribution by sector following the classification of the Helsinki Stock Exchange; we can see that about 26.82% of the Finnish issues in the sample period analyzed correspond to Telecommunication and Electronic, 13.41% to Metal and Engineering and 12.19% to Food Industry.

Table 1 about here

Table 2 presents summary statistics for various characteristics of 82 completed Finnish SEOs during the period 1996-2003. Panel A of Table 2 presents the general characteristics of issuing firms regarding issuer size, proceeds from SEOs, total asset and total debt. The median size of a Finnish issuing firm is 218 million Euros, which is higher than that of the median U.S. offering firm (Soku Byoun 2004) and about the same as that of the median French SEOs (Pierre Jeanneret 2005). Finnish SEOs are associated with low proceeds, the median of offering size being 18.08 million Euros.

Panel B of Table 2 presents the pre-transaction leverage of firms issuing equity. Four measures of leverage are reported. Leverage at market, leverage at book, long-term debt and short-term debt. Mean (median) leverage at market is 41%

(41%). The mean (median) leverage at book is 53% (52%). These numbers are quite high compared to those of the mean (median) U.S offering firm (Armen Hovakimian 2004).

Panel C of Table 2 presents characteristics of the issuing firms' investment opportunities. They are market/book ratio, dividend yield, return on equity, capital expense/total asset and market value growth rate. The mean market-to-book ratio of issuing firms is 1.55. Like most issuing firms in the USA and Europe, most Finnish issuing firms do not offer dividends in the year ending just prior to SEOs. The mean of return on equity is 14.11%. The ratio of capital expenditures to total assets over five years preceding the SEOs averages 15%, the mean annually compounded growth rate in market value is a high at 42.68 %. Generally, Finnish issuing firms have high level of debt and investment opportunities at the time they offer new shares.

Table 2 about here

3.2 Methodologies

To examine the stock market reaction to the announcement and the issuance of seasoned equity issues, we employ an event-study methodology. Day 0 was the event day in the time-line. The estimate period was t_{-300} to t_{-60} relative to the event day. The event window was t_{-60} to t_{+60} relative to event day. The daily share returns are estimated as follows:

$$R_{it} = \text{Ln}(P_{it}/P_{it-1})$$

where Ln is the natural logarithm, R_{it} is the return on share i on day t, P_{it} is the closing price of share i on day t, and P_{it-1} is the closing price of the share i on day *t-1*.

The Market-Model was used to estimate expected returns of common stocks of sample events:

$$E(R_{it}) = \alpha_i + \beta_i(R_{mt}) + \varepsilon_{it}$$

where α_i is the constant term for share i, β_i is the sensitivity (slope coefficient) of the return on the market, R_{mt} is the returns on the HEX-Portfolio Index in time period t and ε_{it} is random error term. The parameter of the Market-Model was estimated over the above-mentioned estimate period.

The abnormal returns for the sample event was the difference between the actual returns on the common stocks and the expected return generated by the Market-Model. The abnormal return (AR_{it}) for each sample event i on day t was calculated as follows:

$$AR_{it} = R_{it} - E(R_{it})$$

where AR_{it} is the abnormal return on share i in time period t; R_{it} is the actual return on share i in time period t and $E(R_{it})$ is the expected return on share i in time period t

A. Craig Mackinlay (1997) was followed to calculate the z-statistics to test the null hypothesis that the stock price reaction is equal to zero.

The impact of the announcement and the issuance of seasoned equity offerings on stock market are estimated over a 2-day period consisting of event-day zero t_0 and the following trading day t_{+1}. There are two event-days in this study. They are the announcement day and issuance day. The announcement day is the first announced day of equity issue from issuing firms as it was reported on the Helsinki Stock Exchange. Since in the practice the issuance day and announcement day do not coincide but are several weeks apart and not all firms that announced a seasoned equity issue actually issued. Thus, an issuance day is the day on which proposed offerings are completed and equity is actually sold. Thus, in my view, issuance day is the day that actually conveys the information of SEOs.

To examine empirically the effect of investment opportunities and leverage, three alternative measures for investment opportunities of issuing firms are used, namely market/book ratio, capital expense/total asset ratio and dividend yield. The three different proxies for issuing firm's leverage are also calculated, namely market leverage, book leverage and long-term debt/total assets ratio. Then the total sample was sub-grouped by the issuing firms' leverage and investment opportunities into quartiles. Quartile 1 (high) contains the 25 % of issuing firms with the highest leverage or investment opportunities; quartile 4 (low) contains the 25% of issuing firms with the lowest leverage or investment opportunities. A cross sectional regression analysis was also employed in the study to identify the relationship between the variables. The dependent variables are announcement abnormal return. The independent variables are market leverage and market to book ratio.

4. Empirical Results

Market reactions to announcements and issuances of SEOs in Finland are presented in Table 3. In general, the announcement of Finnish SEOs is met with a negative stock price reaction. The 2-day announcement abnormal return was -3.6%, which was significant at the 1% level. This result is consistent with the findings of earlier studies.

Furthermore, more than 80% of the firms in the sample experienced a negative abnormal return in the 2-day announcement period, a rather higher percentage than that reported in Denis (1994) and Burton et al. (2001).

As mentioned earlier, market reaction to the issuance of SEOs on which the equities are actually sold was also investigated in this study. The 2-day issuance abnormal return stock price was -2.4%, which was significant at the 1% level and 85.3% of the sample experienced a negative abnormal return on this issue date. This result supports the Myer and Mailuf (1984) theory and arguments presented earlier. If announcement dates are the dates on which the issuing firms announce to the market that they are going to issue new securities, issuance dates are those on which issuing firms confirm that the proposed offerings are actually being completed, causing market participants to assume that the issuing firms still think the shares are overpriced. As a result, stock prices fall on issuance dates.

Table 3 about here

To test Hypothesis 1, sample firms were classified into quartiles by their growth opportunities. The 25% of issuing firms with the highest- growth opportunities in the sample were classified as the high-growth group, the 25% of issuing firms with the lowest-growth opportunities in the sample were classified as the low-growth group. The event-day abnormal returns for each group were calculated and compared. The difference in their mean abnormal returns between the high-growth group and the low-growth group is also tested for statistical significant.

The results in Table 4 indicate that there are significant differences between the two groups in their abnormal returns for all variables of growth opportunities (market/book ratio, capital expense/total assets and dividend yield). But the most important finding is that high-growth opportunities firm's market reaction was significantly less negative than that for the low-growth sample. Thus, these findings support the prediction in Hypothesis 1 that firms with high growth opportunities should experience less value loss than firms with low growth opportunities at the announcement and issuance of SEOs.

Table 4 about here

To examine empirically the effect of leverage on SEOs, the sample firms were also sub-divided according to their existing leverage level into quartiles. To test the robustness of the results, three alternative proxies are used for the leverage, namely market leverage, book leverage level and long-term debt to total asset ratio. The results from Table 5 showed that the event-day negative reactions were higher for high-levered group than for low-levered groups for all three proxies of leverage. The differences of their mean abnormal returns are statistically significant. Thus, the findings support the negative impact of leverage on seasoned equity issuing because of a marginal increase in the level of information asymmetry (Hypothesis 2). Furthermore, the theories of Raymar (1993) and Dierkerns (1991) both predict that in the presence of a sufficient degree of leverage and default risk, a positive market reaction to equity issuance is possible. However, the observation from Table 5 is that, regardless of the quartiles, the announcement and issuance effects are non-positive. These results do not support Raymar (1993) and Dierkerns (1991).

Table 5 about here

Since the leverage has a negative effect on the market response to equity issue, we further test if the size of the leverage change produced by the new issue could affect the market reaction to equity issuance. The sample firms are further divided into three categories for each of the two variables (Table 6). In particular, the percentage leverage change group is identified as: (1) small change, (2) medium change, (3) large change. Small change represented by 33.33% of firms with the smallest percentage leverage change in the sample,   Large change represented by 33.33% of firms with the largest percentage leverage change in the sample.

Pre-issue leverage-grouped firms are identified as: (1) low, (2) medium, (3) high.

Table 6 presents the announcement (Panel A) / issuance (Panel B) abnormal returns for each of the three sizes of capital structure change, each of the three pre-issue categories, and nine paired categories of the two variables.

The results show that stock return varied inversely with the magnitude of capital structure change as measured by percentage change in leverage (evidence column 4). The findings for the three pre-issue leverage categories are presented in row four of Table 6 suggest that there is a tendency for firms with lower leverage to experience a smaller negative price effect at announcement time as well as at issue time. Finally, to consider the joint impact of capital structure change and the pre-issue leverage level, each pre-existing leverage category is subdivided by percentage change in leverage. The mean portfolio returns on the announcement/issue abnormal return for each of the nine categories is presented in the first three columns of Table 6. With a few exceptions, the data exhibit a consistent pattern. There is an inverse relationship between capital structure and return. Also, there is a tendency for firms with lower leverage to experience smaller negative price effect at announcement time as well as at issue time.

Table 6 about here

In this paper, we also examine the combined effect of leverage and growth opportunities (Hypothesis 3) on SEOs. The samples were sub-grouped by their leverage and growth opportunities. Table 7 presents the event- day abnormal return

for the various sub-samples. The results indicated that low-growth and high- leverage firms are the worst performers at the announcement and issuance of SEOs. The 2-day announcements abnormal return for low-growth, high-leverage was -0.042 and for high-growth, high-leverage -0.013. The difference in their mean abnormal return was statically significant at the 1% level. These findings support the prediction in the Hypothesis 3.

Table 7 about here

Finally, regression analysis was used to determine whether or not leverage and growth opportunities are significantly related to market reactions to SEOs on announcement and issuance dates. Table 8 contains the results of the regression analysis. The coefficients of market leverage in model 1, model 3 and model 4 were consistently negative and significantly at the 1% and 10 % levels. The coefficients of growth opportunities (market-to-book ratio) in model 2, model 3, and model 4 were all positive and statistically significant at 1% level and 5% level. These findings once again affirm previous evidence that leverage and growth opportunities have a significant effect on SEOs (Hypotheses 1 and 2). These results also support theories of information asymmetry (Myer and Mailuf (1984), Choe et al. (1993), Ambarish et al. (1987)) or overinvestment of free cash flow (Jensen (1986)). However, these results contradicted the theories of Raymar (1993) and Dierkerns (1991) predicting that higher levered firms should perform better than lower levered firms at SEOs announcement. When both leverage and growth opportunities were regressed on the event-day abnormal return, the results in model 3 confirmed that leverage and growth opportunities played important roles in explaining the market reaction to SEOs.

Table 8 about here

5. Conclusion

This paper examined the effect of leverage and growth opportunities of issuing firms on the market reaction to SEOs on announcement and issuance dates in Finland. The impact of leverage on SEOs has so far received very little attention in empirical studies. Raymar (1993), Dierkerns (1991) argue theoretically that when the firm has outstanding debt issues equity issue may be a positive event. No support for this theory was found in this study. The evidence in this paper shows that leverage has a significantly negative effect on SEOs. High-levered firms experience more value loss than low-levered firms at the announcement of equity issue and thus support the alternative view of leverage effect presented in this paper. This paper argues that leverage has a negative association with information asymmetry. Thus an equity issuance will lead to an increase in the level of information asymmetry for the issuing firm. Therefore, the level of information asymmetry will be higher for the high-levered firm and lower for the low-levered firm when a firm announces the equity issue and decreases its leverage.

"Growth theories" (Ambarish et al. 1987, Jensen 1986, Choe et al. 1993) argue that if the issuing firms possess growth opportunities, then they should perform positively at event of SEOs. But, Mc Laughlin et al. (1988), Gombola et al. (1998) and Smith &Watt (1992) argue that high-growth firms have higher information asymmetry and so are more overvalued than low-growth firms. Thus, they should experience more value loss at announcement of SEOs. The results of this paper support for "growth theories". The findings from both event studies and regression analysis showed that growth opportunities have a significantly positive effect on SEOs. The high-growth firms perform better than the low-growth firms at the announcement and issuance of SEOs. These findings are also consistent with empirical studies on the other markets such as Pilotte (1992) and Denis (1994) in US, Burton et al. (2001) in the UK, and Corby et al. (1998) in Ireland. When the effects of leverage and growth opportunities are examined simultaneously, it is found that high-levered, low-growth firms are the worst performers at event SEOs. Thus, the results are consistent with the predictions of Hypothesis 3.

Finally, in regression analysis, the coefficients for the leverage are consistently negative and significant in model 1, model 3 and 4, while the coefficients of growth variables are significantly positive in model 2, model 3 and model 4. These observations once again confirm the previous evidence supporting Hypothesis 1 and Hypothesis 2. Overall, this paper provides novel evidence that the leverage and growth opportunities of issuing firms have a significant effect on the market reaction to seasoned equity issue in Finnish stock markets.

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Table 1. Number of Seasoned Equity Offerings (SEOs) by Year and Industry

Panel A: Distribution of the qualified SEOs by calendar year		
Issuing Year	*Number of Announcements*	*Number of Completed Issues*
1996	3	2
1997	6	5
1998	9	8
1999	7	6
2000	15	13
2001	26	24
2002	16	14
2003	11	10
Total	93	82

Panel B: Number of SEOs by industrial classification		
Sector	*Number of Completed Issue Firms*	*% of Sample*
Transport	3	3.66 (%)
Trade	3	3.66
Metal and Engineering	11	13.41
Forest Industry	6	7.32
Food Industry	10	12.19
Telecommunication &Electronics	22	26.82
Construction	3	3.66
Chemicals	3	3.66
Pharmaceuticals	4	4.88
Media and Publishing	4	4.88
Other industry	6	7.32
Other service	7	8.54
Total	82	100

Table 1 classifies SEOs by year of issuance and industry classifications. The samples consist of 93 announcements of SEOs in which 82 proposed issues going through with the issue and 11 proposed issues withdraw their issue during the period 1996-2003 on the Helsinki Stock Exchange. Bank, insurance, and investment companies are excluded from the sample.

Table 2. Descriptive statistics of the Finnish SEO, 1996-2003

Mean, median, maximum and minimum values for selected variable of 82 completed Finnish SEOs during the period 1996-2003. Issuer size is the market value at the year ending just prior to the sample offering announcement. Market leverage was defined as the ratio of the book value of total debt divided by the sum market value of common stock, book value of current debt, long-term debt and liquidation value of preferred stock. Book leverage was defined as the ratio of book value of total debt divided by total asset. Market/book ratio (M/B) is sum of the market value of equity and book values of long-term debt and preferred stock, all divided by the book value of total assets. M/B is measured as of the year ending just prior to the sample offering announcement. Return on equity (%) is issuing firm's return on equity for the year ending just prior to the offering announcement. Capital expense/total asset is the average ratio of capital expenditures to total assets over five years preceding the issue announcement. Dividend yield of the issuing firms is measured by the year ending just prior to the offering announcement. Growth rates (%) in market value are annually compounded growth rates. The growth rates are measured over the 5 years preceding the issue announcement.

Variables	Mean	Median	Maximum	Minimum
Panel A: Issuers General Characteristics				
Issuer size (*million Euros*)	8,095	218	223,000	10
Proceeds from SEOs (*million Euros*)	83.90	18.08	530	1
Total Assets (*million Euros*) 18.16	2,068		300	23,327
Total Debt (*million Euros*)	850	214	10,181	9.5
Panel B: Issuers Financial Leverage				
Market Leverage	0.41	0.41	0.95	0.009
Book Leverage	0.53	0.52	0.97	0.17
Long- Debt/ Total Assets	0.19	0.19	0.65	0
Short- Debt/ Total Asset	0.34	0.31	0.65	0.11
Panel C: Issuers Investment Opportunities				
Market/Book ratio	1.55	1.12	935	-3.7
Dividend yield	0.03	0.02	1.50	0
Return on Equity (%)	14.11	12.80	110	-414
Capital Expense/Total Asset	0.15	0.08	1.70	0
Market Value Growth rate (%)	42.68	27.70	194	-50

Table 3. Abnormal Returns around Announcement and Issue Days of Finnish Seasoned Equity Offerings 1996-2003

2-day Average Announcement Abnormal Return		
Mean	*-0.036*	
Median	-0.036	
Maximum	0.183	
Minimum	-0.212	
Percentage Negative AR		80.6%
Z-Value (H_0: mean AR=0)	-6.97	
P-value	0.00	
2-day Average Issue Abnormal Return		
Mean		*-0.024*
Median		-0.017
Maximum		0.096
Minimum		-0.141
Percentage Negative IR		85.30%
Z-Value (H_0: mean IR=0)		-4.167
P-value		0.00

Two-day average abnormal returns are estimated using Market Model procedure with parameters estimated over a 300-trading day period ending 60 days prior the sample offering. Significant tests are conducted using standardized abnormal return as in A. Craig Mackinlay 1997.

Table 4. 2-day Average Announcement / Issuance Abnormal Return categorized by Issuing Firm's Growth Opportunities

	2-day Abnormal Return at	
Growth Opportunity Variables	*Announcement Period*	*Issue Period*
Panel A. Market to Book ratio		
High Growth	-0.026	-0.009
2	-0,028	-0.015
3	-0.035	-0.025
Low-Growth	-0.049	-0.064
Differences (High and Low-Growth)	*0.023**	*0.055** **
Panel B. Capital Expense/ total assets		
High Growth	-0.031	-0.03
2	-0.044	-0.029
3	-0.035	-0.022
Low-Growth	-0.075	-0.039
Differences (High and Low-Growth)	*0.043****	*0.007*
Panel C. Dividend Yield		
High Growth	-0.027	0.006
2	-0.043	-0.029
3	-0.042	-0.022
Low-Growth	-0.069	-0.028
Differences (High and Low-Growth)	*0.042***	*0.035****

*** Significant at the 1% level;**   Significant at the 5% level;*   Significant at the 10% level

Two-day average abnormal returns are estimated using Market Model procedure with parameters estimated over a 300-trading day period ending 60 days prior to the sample offering. Issuing firm's growth opportunities in the year before the issue announcement took place are used and categorized into quartiles. Quartile 1 (high) contains the 25 % of issuing firms with the highest growth opportunities; quartile 4 (low) contains the 25% of issuing firms with the lowest growth opportunities.

Table 5. 2-day Average Announcement / Issuance Abnormal Return categorized by Issuing Firm's Financial Leverage

	2-day Abnormal Return at		
Leverage Variables	*Announcement Date*		*Issue Date*
Panel A. Market Leverage			
Total sample	-0.034		-0.021
Low-Levered	-0.033		-0.012
High-Levered	-0.053		-0.042
Differences (Low and High-Levered)		*0.02**	*0.03***
Panel B. Book Leverage			
Total sample	-0.040		-0.021
Low-Levered	-0.024		-0.009
High-Levered	-0.041		-0.035
Differences (Low and High-Levered)		*0.017***	*0.026***
Panel C. Long-term Debt / Total Assets			
Total sample	-0.036		-0.018
Low-Levered	-0.009		-0.003
High-Levered	-0.035		-0.023
Differences (Low and High-Levered)		*0.026***	*0.02***

*** Significant at the 1% level;** Significant at the 5% level;* Significant at the 10%

Two-day average abnormal return are estimated using Market Model procedure with parameters estimated over 300-trading day period ending 60 days prior the sample offering.

Market Leverage was defined as the ratio of the book value of total debt divided by the sum market value of common stock, book value of current debt, long-term debt and liquidation value of preferred stock. Book Leverage was defined as the ratio of book value of total debt divided by total asset. Issuing firm's leverage in the year before the issue announcement took place is used and categorized into quartiles. Quartile 1 (high) contains the 25 % of issuing firms with the highest leverage; quartile 4 (low) contains the 25% of issuing firms with the lowest leverage.

Table 6. Panel A. 2-day Average Abnormal Announcement Return for Subgroups

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		Pre-Issue Leverage Category		
Percentage Change				
In Leverage	Low	Medium	High	*All*
	(1)	(2)	(3)	(4)
(1) Small	-0.006	-0.012	-0.030	*-0.019*
(2) Medium	-0.022	-0.026	-0.032	*-0.026*
(3) Large	-0.054	-0.056	-0.057	*-0.056*
(4) All	*-0.027*	*-0.030*	*-0.041*	

Panel B. 2-day Average Abnormal Issuance Return for Subgroups

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		Pre-Issue Leverage Category		
Percentage Change				
In Leverage	Low	Medium	High	*All*
	(1)	(2)	(3)	(4)
(1) Small	0.010	-0.033	-0.004	*-0.010*
(2) Medium	-0.013	-0.005	-0.042	*-0.021*
(3) Large	-0.026	-0.023	-0.067	*-0.041*
(4) All	*-0.010*	*-0.020*	*-0.039*	

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Table 7. 2-Day Average Announcement/Issue Abnormal Return of the Overall Sample broken down by Leverage Level and Growth Level

Panel A. Announcement Period

	Low-Levered		High-Levered	*Differences*
High-Growth	-0.027	-0.013	*-0.014**	
Low-Growth	-0.037	-0.042	0.005	
Differences	*0.01*	*0.029****		

Panel B. Issuance Period

	Low-Levered		High-Levered	*Differences*
High-Growth	-0.015	-0.007	*-0.008*	
Low-Growth	-0.033	-0.066	*0.033***	
Differences	*0.018**	*0.059****		

*** Significant at the 1% level;**   Significant at the 5% level;*   Significant at the 10% level

Table 8. Two-day announcement abnormal return - Issuer's Financial Leverage and Growth Opportunities. The table reports the estimates of univariate and multivariate versions the regression analysis.

$$AR_{it} = \alpha + \beta_1 Leverage_{it} + \beta_2 Growth_{it} + \beta_3 Leverage_{it} * Growth_{it} + \varepsilon_{it}$$

where AR denotes 2-day announcements abnormal return, leverage was defined as the ratio of the book value of total debt divided by the sum market value of common stock, book value of current debt, long-term debt and liquidation value of preferred stock. Growth was defined as market- to-book ratio.   T-statistics for the coefficient estimates are reported in parentheses.

*** Significant at the 1% level;

**   Significant at the 5% level;

*   Significant at the 10% level

	Model 1	Model 2	Model 3	Model 4
Constant	-0.040*** (-3.32)	-0.033*** (-3.36)	-0.028** (-2.24)	-0.018** (-1.98)
Leverage	-0.057*** (-1.54)	-0.029* (-1.62)	-0.032*	(-2.28)
Growth	(2.21)	0.30** (1.78)	0.042** (2.8)	0.148***
Leverage* Growth	(1.23)		0.282	
Adjusted R²	-0.25	-0.22	-0.3	-0.32

Probe into the "Marriage" Relationship of

"Outside Managers" and Family Firm

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Abstract

In China, the try of family firms introducing "outside managers" usually results in a failure, which is caused by imperfect legal environment, and irregular professional managers' team. This paper aims at probing into the possibility of win-win of "outside managers" and China's family firms in perspective of their complicated relationship, in hope of "outside managers" winning survival in family firms for a long period, and improving family firms' management level and market competitiveness.

Keywords: Family firm, "Outside managers", Win-win

1. Introduction

The emergence and prosperity of private economy is one of wonderful achievements in China's economic stage since the reform and opening-up policy. Till late 2008, China has 6,594,200 private enterprises, accounting for 70.91% of mainland-funded enterprises (Xinhua net, Apr. 21st, 2009), which far surpasses the number of state-owned enterprises and foreign-funded enterprises. However, according to an investigation done by China Non-governmental, no more than 800 private enterprises belong to the large-sized type, almost accounting for 0.004% of the total number. The smaller the enterprise scale, the stronger the tendency of family management is. Apparently, China's private enterprises are mostly family firms.

How family firms adopt professional management is an important issue. Professional management, in short, is to solve firms' internal problems by "laws and rules". Firms operate by procedures and rules. Positions are based on abilities and morals. Profits are from selling knowledge and services. Professional management needs professional managers. However, family firms can not get sufficient management talents. The short of professional managers has already become a bottleneck restraining the growth of many family firms in China. From this point of view, family firms are not only the largest customers of professional managers but also the largest suppliers.

2. The conditions of "outside managers": two types of cases

An effective combination of human resources, financial resources, network resources, culture resources and family firms' internal capital stock will benefit the development of China's family firms. Although family firms are not necessarily in a lower efficiency (Xiaoping Chu, 1999), outer human resources, namely "outside managers", can help to improve the competitiveness of firms, under the condition of severe market competition and short of human resources of families. Practices prove that to introduce "outside managers" means both chances and risks for family firms.

In Joincare Pharmaceutical Group, 74.18% of shares are controlled by family members totally. In 1995, its main product "Taitai Oral Liquid" runs popularity. The fast growth brings about new challenges to management. Baoguo Zhu, the board president, introduces outer human resources by following the principle of "ability-position match", and appoints some "outside managers" who possess experiences of managing trans-national companies and understand China's conditions, constructing a regular and effective management system for Taitai Pharmaceutical. As a result, during the depression period of health products from 1995 to 1998, Taitai Pharmaceutical still keeps the sales of nearly 660 million Yuan, and turns into one of pharmaceutical enterprises that are most profitable and develop fast. Although some "outside managers" introduction cases are successful, most family firms that introduce "outside managers" result in

failures.

In 1997, after Lanzhou Huanghe Enterprise Co. Ltd re-employs Yanyuan Wang who contributed a lot to the enterprise as it entered the market, the enterprise suffered a lot due to the serious decreases of stock price, internal conflicts, and frequent personnel changes caused by excessive empowerment. In 2001, in Guangxi Penshibao Co. Ltd, the professional manager Weizun Wang was accused of duty encroachment and commercial bribery because he criticized the enterprise owner for false accounting, which turned into the first case of China's professional manager. Besides, Jiqing Yao become a useless manager in Vantage. Zhidong Wang was discarded by Sina. Guangyu Huang, the board president of Guomei, changed the management level completely. All these cases serve as negative examples for "outside managers". So, what is the difficulty of combining "outside managers" with family-oriented private enterprises? What is the solution?

3. Puzzle: How to deal with the "marriage" relationship of two parties

Any team or individual as "outside managers" has to understand and deal with following issues properly if the team or individual hopes to gain achievements in family firms, no matter how the ability of team or individual is.

3.1 "Outside managers" and entrepreneurs

Entrepreneurs as the direct boss of "outside managers" select the "outside managers" on one hand. On the other hand, they may become barriers of influencing "outside managers" negatively.

(1) Different thinking

Family firms possess a struggling spirit and practical nature. But they do not own sufficient knowledge. Therefore, they need "outside managers" who have rich knowledge and excellent work abilities. However, different views to enterprises' objectives and situations, marketing, and performances may lead to a separation at last. The case of Skyworth is a proof. Besides, entrepreneurs are inclined to avoid risks. Their long-term reform plans may conflict with "outside managers" programs because "outside managers" can not understand the situation completely in a short period. They pursue for excellent performances in a contract term. So, that also serves as a vital reason for the failure of the "marriage".

(2) Empowerment risks

To empower "outside managers" is reasonable. But it may cause the decentralization of authorization in an enterprise. Therefore, two issues need to be solved. Firstly, it is the threats from opportunism after the decentralization of authorization. Secondly, it is the affirmation of relevant responsibilities. Meanwhile, because entrepreneurs are worry about losing the real control over enterprises, they may fail to execute a full empowerment. Three sampling surveys on private enterprises in China during past ten years show that most private entrepreneurs are the leaders of enterprises (see Table 1). Although the percentage is decreasing more or less, it is always above 90%. The centralization of entrepreneurs are common.

(3) Information leakage

Presently, the market legal system is powerless. The imperfect information and contracts may lead to enormous costs for negotiation, resolution, incentive, and restraints once things happen. Therefore, as family firms are trying to introduce "outside managers", they have to make balance between moral risks and opportunism. Mingshan Yin, the chairman of Chongqing Lifan Group, suffered a lot, including psychological hurts and losses of enterprise resources, due to the opportunism of "outside managers", which caused defects in information management. So, owners of family firms improve their consciousness of protecting firms' information. As for some vital information, family firms almost exclude "outside people" completely. The process of enterprises releasing information tends to be lower, which deepens the degree of information asymmetry between "outside managers" and family firms.

(4) Moral deficiency

Some "outside managers" are lack of dedicated spirit and professional morals. Besides, the professional managers market is irregular and non-occupational in general. These factors cause the absence of trust between family firms and "outside managers". In the cooperation of "outside managers" and family firms, "outside managers" do not trust the calculation tools and even have different recognitions to the fulfillment of expected return, which ruins firms' trust mechanism, resulting in that some family firms resist the participation of "outside managers" as a group. John Groene Wegen divides the "integrity", as an attribute of individual behavior, into "personality integrity" and "environment integrity". Even if a person is short of personality integrity, he or she may possess the environment integrity gradually due to the influences of families. From this point of view, the non-integrity of "outside managers" makes family members' environment integrity tend to be more valuable.

3.2 "Outside managers" and family members

Family firms are based on "families" and "feelings". Therefore, they usually treat non-family members differently. In

specific, they may resist, be against, and confront the outside people. In addition, "outside managers" usually occupy important positions in family firms. They can govern some family members, which exerts direct or indirect impacts on family members' interests. Family members are worry about the betray of "outside managers", which will not only harm family firms' interests but also threats family members' safety. As a result, family members may understanding the behaviors of "outside managers" irrationally, which will affect the performances of "outside managers" seriously.

3.3 "Outside managers" and enterprises' original employees

As "outside managers" enter a family firm, they are new employees and bosses for original employees. "Outside managers" serve as a threat for original employees' rights and a challenge for their work habit. Therefore, original employees will resist and exclude "outside managers" naturally. They usually behave against with "outside managers" in order to maintain their rights and positions. So, "outside managers" have to meet these kinds of challenges as they join in a new family firm.

3.4 "Outside managers" themselves

Presently another prominent issue is the non-professional nature of "outside managers", together with the contradiction between psychological contract issue and family firms. The "non-professional" means managers usually do not possess fixed goals. In *Enterprises' Entrepreneurs ------ Contract Theory*, Weiying Zhang thinks that people with high abilities but less wealth will be employed by capitalists as managers. Here, the managers are "outside managers" in this paper. Based on experiences of working in family-oriented private enterprises, these managers will create their own business once there is a chance. So, their goals are not fixed. The transformation cost of creating a venture and being managers are lower, which directly causes the instability of managers market. Xinchun Li names it as "a market failure of managers market".

4. Ways for positive combination

The maturity of professional manager team and the standardization of legal market is a gradual process. Therefore, it is normal for problems appearing as introducing "outside managers". We should not stop the introduction merely because of several failures. And we should not wait just because of the imperfect outer environment.

4.1 For "outside managers"

The "world No.1 CEO" Jack Welch introduces the three principles for GE recruiting talents in his autobiography: insist on integrity, emphasize on performance, and thirst for reform. The author agrees that the three principles are also three important factors for "outside managers" creating splendid performances in family firms.

(1) Give priority to integrity

Market economy means law-governed economy and moral economy. The morals and professional ethics of "outside managers" are the essence, which can generate added-value for "outside managers". Guomei emphasizes on "morals first, abilities second" in recruiting new employees. Zhongbao regards professional managers' morals and personal fames as the No.1. "Outside managers" should improve the morals, enhance professional consciousness, and try to gain trust of entrepreneurs by their sincerity, integrity, and loyalty.

(2) Emphasize on performance

All enterprises aim at gaining profits as they introduce "outside managers". However, due to the limits of knowledge, information, and wisdom, "outside managers" can not solve all problems properly. "Outside managers" should take "being others' managers" as their occupation, solving problems for entrepreneurs as their responsibilities and obligations. Market value is the life of professional managers. If without performances, professional managers will be discarded by the market.

(3) Reform

The management team formed by internal members has similar ideas toward corporate culture and values, which may influence the innovation, especially the strategic innovation. Innovation is the soul of enterprises. The coming of "outside managers" breaks the original rules of enterprises and brings about new thoughts and methods. "Outside managers" should make reforms bravely and be good at making innovations. Besides, with the precondition of accepting enterprises' former cultures and pursuing for similarities of cultural ideas, "outside managers" can put forward new suggestions for enterprises' defects and strategic programs, helping enterprises to develop properly.

4.2 For family firms

As "outside managers" improve themselves, family firms, especially the owners should create a positive environment for "outside managers". According to Maslow's hierarchy of needs, the author thinks that owners of family firms should follow these principles as follow.

(1) Physiological needs ------ offer reasonable salaries

Generally speaking, as enterprises introduce "outside managers", they give higher prices. Therefore, "outside managers" feel satisfaction in the physiological aspect. As for equipped welfare, enterprises should apply a multiple distribution way, leveling the salaries, actualizing more selective and practical welfare package, absorbing and retaining the elite "outside manager" team. Meanwhile, build a long- term salary program based on annual salaries and execute the payment with basic salaries and rewards. By this way, it can satisfy the psychological contract of "outside managers" on one hand. On the other hand, it can decrease risks of enterprises in recruiting new managers effectively.

(2) Safety needs ------ build a long-term development strategy view

Owners of family firms should establish the management mode. If they adopt an American traditional mode, firms need an excellent executer. If they adopt an English turnover management mode, firms' owners should take the chairmen position, similar to the Jinyi Group, influencing and supervising the performances of "outside managers". As for the second mode, firms should actualize a complete empowerment. Otherwise, professional managers can not exert the comprehensive effects or carry out the policies thoroughly.

(3) Social needs ------- assist to coordinate interpersonal relationship

Firms' owners should assist to coordinate the relationship between family members and "outside managers" in purpose, applying an open, regular, and transparent performance evaluation and salary system, and emphasizing on talents instead of bloods. Meanwhile, build the authority of "outside managers" among firms' employees and empower "outside managers" fully. Besides, to construct a fair competition pattern for positions can help "outside managers" to gain success in private firms.

(4) Esteem needs ------ respect the authority of "outside managers"

To be people-oriented means to understand people, respect people, and treat people kindly. For firms' daily decisions and daily management, respect the professional suggestions of "outside managers". Provide sufficient personal cares and professional respects for "outside managers". Form an open decision-making mode and exert the intelligent effect of "outside managers". Maintain an open and transparent "political environment" and effective information channels. Trust "outside managers" and empower them. Do not interfere into the management too much. Disclose necessary information. Protect the professional authority of "outside managers" and help them to exert their abilities completely.

(5) Self-actualization ------ create a suitable development space

First of all, make up modern enterprise management rules. Secondly, build a power restraint mechanism and an effective incentive mechanism. As owners of family firms, do not trust anyone completely. Just make best use of the abilities of people. In games of loyalty and trust, by applying some restraint institutions, including monthly reports, meeting supervisions, financial audit, daily business regulation, and financial tracing approval, defend against the harms of opportunism. With the precondition of perfect supervisions, empower "outside managers" fully and improve their senses of being trusted. Thirdly, perfect the professional development system, expand the professional development space and platform, and program the professional career for "outside managers". Offer more opportunities for "outside managers" learning and development.

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Table 1. Whether interviewers or enterprise investors are engaged in enterprises' business management / administrative management (unit: %)

Time	Yes	No	Total	Number of samples
1993	97.8	2.2	100.0	1338
1997	96.4	3.6	100.0	1485
2000	96.8	3.2	100.0	2960
2002	96.0	4.0	100.0	3111
2004	92.4	7.6	100.0	2923

Source: Sample surveys of China's private enterprises in 2000, 2002, and 2004.

Seigniorage and Public Deficit:

A Test of Comparison between Turkey and Tunisia

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Abstract

Usually regarded as a financial advantage enjoyed by the issuers of the currency, seigniorage is the difference between the nominal value of the currency sign and the cost of its production and distribution. Historically, it took the form of the deterioration of the intrinsic value of coinage from its official value. Sometimes exceptional, revenues from this operation allow the government to finance its spending without raising new taxes. In modern economies, in the absence of deep financial markets, the state has recourse to money creation to finance its deficit. In this regard, the article proposes to evaluate the experience of two countries that have negotiated differently the process of financial liberalization: Turkey and Tunisia.

Keywords: Seigniorage, Public deficit, Central bank, Turkey, Tunisia

1. Introduction

Cagan (1956), Bailey (1956), Friedman (1971), Phelps (1973) and Sargent & Wallace (1981) analyze seigniorage as a source of income to the Central Bank. In this respect, economic theory distinguishes between two approaches. The first is called monetarist. According to theory, an increase in the money thus inflation (monetary inflation) will result in a readjustment of cash. A variation on the rise in inflation increases the nominal interest rates and reduces real money balances. The demand for money increases to restore demand to its original state. This readjustment of cash has the effect an increase in hoarding and reduced consumption.

Instead of borrowing, the government will create its own currency to finance its purchases. From this point of view, active seigniorage was considered a tax on real cash. To increase the tax authorities are obliged to maintain the

acceleration of money supply. Developed by Phelps (1973), the second approach or the opportunity cost of money, defines the seigniorage as the nominal interest rate multiplied by the real money balances. The income obtained by the government is then equivalent to the loss of the interest rate of the private sector.

Early work examined the inflationary financing from the viewpoint of the cost of welfare in relation to alternative means of financing the deficit. Olivera (1967) suggests that inflation-induced seigniorage may lower real income tax, Aghevli (1977) made a cost benefit analysis and showed that in developing countries, development programs can be financed by the inflation tax because of the inefficiency of the tax system. Tanzi (1977, 1978) analyzes the thesis of Olivera (1967) and supports it, hence the effect of Olivera-Tanzi. De Haan & Zelhorst & Roukens (1993) implement different approaches that attempt to analyze the tax inflationary theory of maximization of government revenue, optimal taxation and fiscal dominance hypothesis.

Finally, empirical work as those of Sargent (1982), Dornbush & Fischer (1986), Von Wijnbergen (1989), Buiter (1990) and Easterly and Schmidt-Hebel (1996) try to show a common approach among economists: inflation is often caused by the need of increasing the seigniorage of the government to finance the high public deficit. In the light of economic theory, this article proposes to analyze seigniorage in Turkey and Tunisia. Given the different features of the two economies, and by concerns of rigor, the analysis is limited to the thesis of Cagan. In the first case, the study covers the period ranging from financial liberalization. In the second case, the study began in 1980, it compares the post-deregulation phase with the phase of financial liberalization. The paper is organized as follows: The second section deals with fiscal policies in both countries in light of adopted economic reforms. The third section examines the use of seigniorage as a complementary recourse to finance the budget deficit.

2. A money creation depending on economic shocks

For several years, Turkish economy was characterized by high inflation rates. This erosion in the relative price of the currency was largely explained by the financing of the deficit by money creation (Akçay and al., 1996), Metin, 1998 and Günaydin, 2004). In practice, this deficit was due to both budgetary activities as off-budget activities. Extrabudgetary funds are the financing of public investment such as defense, security or the costs that were caused by unforeseen events such as the earthquake of 1999 or those caused by the economic crises of 2000-2001. (Note 1) On the other hand, the payment of interest component in the consolidated budget has increased considerably since the early 1990s.

This increased public debt translates into higher interest rates on the money market and increased prices for goods and services and creates a favorable climate for seigniorage. The analysis of the deficit since 1980 reflects a change in its structure and increased its percentage share of Gross National Product (GNP).

2.1 Turkey, new fiscal policy and deficit

Since 1980, the Turkish economy has undergone profound changes. Under the influence of political stand by International Monetary Fund (IMF) the country changed course when leaving the policy of industrialization by import substitution. In accordance with the structural budget is usually applied in these circumstances, the government has seen its economic role significantly reduced. Already in 1983, the structure of the deficit has changed. Compared to the situation that prevailed before 1980 and which was characterized by inadequate funding of public institutions, this deficit is explained rather by the relative importance of these expenses.

To reduce the government's role in the activity and give a boost to the private sector, the authorities have taken two major decisions:

- First, the share of investment in public expenditure of the consolidated budget has decreased considerably,

- Second, the value of direct taxes has declined in favor of indirect taxes in government revenue. This was followed by an unexpected rise in public deficits as specified in Figure 1.

This surge in decades in 1980 and 1990 is explained by:

- The Budget Act of 1985 which provided for the debt of the government, not as an economic tool used in case of need, but as a structural source of budgetary financing.

- The convertibility of the Turkish lira and the liberalization of capital movements in 1989.

In 1985, this new law gave the Treasury the possibility of borrowing up to 200% of its deficit, ie the difference between government expenditure and revenues. Under these regulations, the Treasury is increasingly using debt as a funding source. Expressed in real terms, interest rates increased from -2.7% in 1985 to 17.9 % 1986 and 14.6% in 1987.

Thus, the monetization of the debt it has resulted in the increased share of debt service in public spending, she reached up to 51% in 2001. In return, the share of public investment (1980 and 1985), and then the personnel costs (wages paid) were successfully managed (1992).

On the whole and since 1998, the weight of public sector experienced a variation on the rise. It is mainly due to the debt at interest rates much higher, the losses by public banks and the efforts undertaken by the authorities to improve the financial structure of these institutions (see Figure 2).

As that debt has become a source of funding for the State, the share of interest payments has become increasingly important in the GNP and expenditure. It is only the application of an anti-inflationary policy after 1999 to acquire a primary surplus (budget excluding interest) that the share of deficit in the Gross Domestic Product (GDP) began to decline.

However, the economic crises of 2000 and 2001 are again increasing the public deficit in GDP. The choice of a policy of targeting inflation implied reversed that trend.

Some authors (Kepenek & Yentürk, 2000, Bulut, 2002) cite two reasons for the increase in public expenditure after 1986: firstly, those related to compensation for economic losses in the public sector who have seen a decrease in their power purchase following the military intervention of 12 September 1980, secondly, the high recorded imbalance between revenues and spending and consequent changes in interest rates. Günaydin (2004) insists on the factor of internal debt and the change in fiscal policy from 1986 that encouraged the financing of the deficit by domestic debt. Finally, Sakal (2002) argues that political uncertainty is the main cause of the increase in the deficit.

Indeed, this uncertainty has had a negative effect on economic policies, investments, costs and competitiveness. It was exacerbated by populist politics.

2.2 Tunisia, a monetary deficit maintained within the target

Since the introduction of the structural adjustment program negotiated with the International Monetary Fund in 1986, the Tunisian authorities have managed to achieve three main objectives:

- Better control of inflation in the double effect of monitoring the evolution of money supply and the management of the main prices which compose the general price index. (Note 2)

- A restructuring of the financial system. It is characterized by the consolidation of the banking system and privatization of public banks, which caused a new wave of internationalization of capital of these institutions.

- A revision of the strategy for public debt management to reduce the vulnerability of the country vis-à-vis external shocks.

Regarding the budget, the authorities' objective is to raise the funds necessary to finance investment programs. Now, the new strategy for managing the public debt should help to stabilize the economy and consolidate public finances. Briefly, the authorities have set the following objectives:

- Replace international debt by domestic funds,

- Promote the influx of foreign capital to relay the State,

- Convert foreign debt into investments and reduce short term debt.

In general, the evolution of deficit financing reveals two major developments: a decrease in foreign debt in total credit and an increase in the share of Treasury bonds in the medium and long term compared with short term securities.

In accordance with the mission statements of the IMF, fiscal policy in Tunisia has been described as prudent. (Note 3) The deficit was kept within the target of 3% and in spite of the subsidies granted by the state (2.5% of GDP in 2007). Notwithstanding the positive change in tax revenues have increased steadily in nominal terms since 2000, non-tax revenues including proceeds from privatization have further reduced the ratio of public debt, which rose to 50.9 % in 2007 against 58.3% in 2005 and 59.4% in 2004 (see Table 1). (Note 4)

The restructuring of public debt reflects the will of the State to reduce its external commitments. The sharp decrease in this ratio reflects the prepayment of certain external loans in 2006 and 2007 (770 million dinars) whose interest rates were considered high. The fact remains that these funding sources are nearly two-thirds of the outstanding public debt. In order to have more control over the risks of exchange and other variants of Treasury bills were issued. (Note 5)

The analysis of the evolution of the budget deficit since 1980 to distinguish Figure 3 in two main phases: an initial period of high variation and a second period of quasi-stabilization.

- Until 1991: This period has two phases. Decreasing the first phase which is characterized by deficit/GDP ratios relatively high in 1986 (5.3%) and 1991 (5.9%).

The deterioration of this ratio at the end of the period is mainly due to the negative effects of the drought of 1988-1989 and the negative impact of the crisis in the Gulf.

- From 1992: In response to the previous phase during which the ratio has reached an annual average of 3.8%, this second period characterized by the oscillation of the variable around the target of 3% with rates well above the average in 1995 and 1997 (4.5% in both cases).

During the last phase, the control of this ratio is explained mainly by:

- Improved revenue mobilization,

- Revenues from privatization and

- From low interest rates on both internal and external markets

- A restrictive fiscal policy that concentrates on the current expenditure at the expense of capital expenditure.

2.2.1 Own resources of the Government

During the period 2001-2006, the resources of the government (tax revenues and non-tax revenues) increased at an average rate of 7.5% against 3.3% for total debt.

This performance was mainly due to the considerable variation in non-tax revenues that have seen an average increase of 14.8% against 7% for tax revenue. It allowed the state to contain the acceleration of its debt (which grew at the rate of negative 3.3% between 2000 and 2006). The overruns in previous years are explained by the effort by the administration to assist certain public offices to clean their debts to the banking system. Indeed, since the date of 1996, the Central Bank has purchased the receivables guaranteed by the State Offices of Cereals and Oil to the National Bank for Agriculture. In 2006, those stocks totaled 161.4 million dinars. (Note 6)

2.2.2 The debt of the government

The above table confirms the relative decline in foreign borrowing resources from the state budget. On the whole, external liabilities are dependent on the parity of the currency. The shift of risk Dinar actually worsen the public debt ratio was reduced to 54% in 2006 against 58.3% a year earlier.

In conclusion, the good performance of non-tax revenue and the control of expenditure have reduced the budget deficit. Restrictive fiscal policy implemented during the period consisted mainly focus on current expenditure at the expense of capital expenditure, ie, direct investment and government's expenditure of financial support in the form of grants and investments. 12% of GDP in 1986, capital expenditure fell to less than 7% in 1992 to be followed at an average of 7.5% since 2000. As stated above, the restructuring of the public enterprise sector has also to cope with increased expenditure on salaries and debt retirement.

Given the current budget balances could be subject to pressures that are related mainly to the following factors:

- The behavior of taxation

During the 2000s, tax revenues accounted for 71% of total budget revenue as against 75% during the period 1986-2002. This decrease reflects the decrease in the progression of this variable. It has changed at an average annual rate of around 7% from the year 2000 as against 9% in the previous period (see Figure 4).

- The lowering of tariffs

Following the dismantling of tariffs in relation to the entry into force of the Association Agreement with the European Union, some analysts argue that this reform has raised a problem in terms of resource mobilization. In 1990, these duties accounted for 37% of fiscal resources. They fell by 8% of GDP in 1990 to 3% in 2000. (Note 7) In 2006, these resources have decreased by 16 million dinars compared to the previous year and represent more than 490 million dinars (1.2% as a percentage of GDP) but reached 514 million dinars in 2007. (Note 8) Notice however that this year represents the last year in the process of implementing the free trade area with the European Union.

- The non-tax revenue

They are characterized mainly by lower income from raw materials and products from the privatization of public enterprises. At current prices of energy, the decline in oil revenues is partially offset by fees levied on consumption of fuels.

In short, the necessary increase of the resources of the government requires the improvement of tax collection itself dependent on increased revenues (direct taxes) and the growth of domestic demand (indirect taxes). On the other hand, regarding international debt, the authorities should avoid volatile source of foreign currency exchange risk in the portfolio of the debt. (Note 9)

3. Seigniorage, a solution for financing budget deficit

It is generally accepted that the main method of financing the budget deficit is debt (internal or external). The creation of the currency in favor of the government is sometimes seen as an alternative modality. Excessive use of the authorities to this technique could endanger the major macroeconomic balances.

The purpose of this paragraph is to review the models for calculating seigniorage and propose an application in the cases of Turkey and Tunisia.

3.1 Calculation of seigniorage

The economic literature identifies two main approaches to measuring seigniorage. The first approach is known as standard and the second is called "inflation tax".

The standard approach differs in two variants: the monetarist approach which measures seigniorage as income received by the government following the increase in the monetary base (seigniorage = $\Delta M_t = M_t - M_{t-1}$ where M is the stock of monetary base) and the approach of "opportunity cost" or even the approach to public finance which measures seigniorage as the increasing rate of the real stock of currency (seigniorage = i_t, x M_{t-1} where i is the nominal interest rate). The second approach involves a different concept of seigniorage, "inflation tax". In this case the seigniorage is to lower the real value of the stock of monetary base due to inflation. Seigniorage total is equal to the sum of the inflation tax which is called active seigniorage and passive seigniorage. The latter is calculated from the increase in real value of monetary base.

As for the base itself, some authors distinguish monetary base itself and adjusted monetary base (Anand and Van Wijnbergen, 1989). Following the deterioration of cash caused by the actual inflation, the government does not receive the entire income from seigniorage. Indeed, not only public sector avails of the currency issued by the Central Bank but also commercial banks and private institutions. An increase in the monetary base causes a loss in value of deposits of commercial banks. This loss is offset by demand for new refinancing. A share of seigniorage is offered to private banks in the form of credits. For this reason, the authors propose a new method of calculating the base called adjusted monetary base. It is calculated as the difference between the monetary base and credits available to commercial banks and private sector institutions.

To determine the amount of seigniorage, it is useful to calculate the two forms of monetary base: the actual and adjusted base. Monetary base is the sum of currency and bank reserves at the Central Bank, according to the following formula:

$$H = C + R$$

Where:

H = Monetary base

C = Currency in circulation

R = Total reserves held by commercial banks.

Adjusted monetary base is calculated as the difference between monetary base and credit to both commercial banks and other private sector institutions:

$$H^* = H - (DCcmL + DCpvt)$$

Where:

H^* = Adjusted monetary base,

DCcmL = Loans granted to private commercial banks,

DCpvt = Loans granted to other private institutions.

To calculate the total seigniorage, we need to quantify active seigniorage and passive seigniorage (sum of these two forms of seigniorage).

Active seigniorage rather acts as an inflationary tax. When the Central Bank increases the money supply, this means that the state and the private sector benefit both new cash without paying interest. This concept was developed by Cagan (1956) and Bailey (1956) under the monetarist approach.

One can say that this is a measure of actual cash. Following a rise in inflation, the nominal interest rate also increases. To maintain their purchasing power, economic agents adjust to increase their cash nominal. They hoard more and consume less.

In these circumstances, the state will create its own currency to finance consumption rather than debt. From this point of view, active seigniorage can be considered as a tax on real cash. It can be calculated according to this formula:

$$IT_t = (\Pi * H_{t-1}) / Y_t$$

Where:

IT_t = Active seigniorage

Π = Inflation rate (calculated as the change in the GDP deflator)

H_{t-1} = Monetary base at t-1

Y_t = Current GDP.

Passive seigniorage is equal to the variation of the actual value of the monetary base or, to increase the demand for money. It is measured as follows:

$$S_t = H_t - (1+\Pi) H_{t-1}$$

Where S_t is passive seigniorage.

To calculate the seigniorage we used quarterly data over the period 1987-2004 for Turkey. All of the series are obtained from the Central Bank of the Republic of Turkey. Inflation is calculated by the change in the GDP deflator. For Tunisia, annual data over the period 1981-2006 is obtained from the Central Bank of Tunisia. Inflation is calculated by the change in the CPI.

3.2 Who benefits from seigniorage?

3.2.1 The case of Turkey

In the case of Turkey, the revenue from seigniorage was calculated for the period 1987 - early 2004. It corresponds to the period from the beginning of the financial liberalization until the early years of the adoption of the policy of inflation targeting (see Figure 6 and Table 4) .

Two phases (1988-1997 and 1998-2003) and a sub-phase (2001-2003) were included in the analysis. Indeed, two events have influenced deficits and seigniorage as a means of financing the state.

- The first event took place in the first quarter of 1998. To this date, the Central Bank has stopped the advance of short-term Treasury and other forms of financing enjoyed by the public sector (see Figure 5). Controlling inflation is considered since, as a priority. This priority has not changed during the economic crises of 1998 and 2000-2001.

- The second event took place in April 2001: Following the new reforms, the Central Bank of Turkey has acquired its independence. To calculate the seigniorage are used statistics from the Bank of Turkey. The data are quarterly data.

Overall, the seigniorage revenues have fallen considerably with the advent of independence of the Central Bank. In short, taking into account the steps mentioned reveals a significant decline in the seigniorage in GNP since 1988. To achieve this result, policies to fight against inflation conducted since 1998 played an important role. From 1997, the first law in 1997 prohibited the Central Bank to finance the Treasury; a second law (2001) authorized the Central Bank to decide on the conduct of monetary policy independently of government policies. The fight against inflation has lowered considerably the share of seigniorage in GNP to 0.5% in 2003. A more detailed analysis of these data shows that the state has benefited from advances in the short term until 1997. It is a form of seigniorage as long as the government was given and to repay principal and interest. These advances have decreased before stopping completely after 1999. Concerning the structure of funding arrangements for the public deficit, the statistics show that external debt was relatively high during the 1990s. To contain it, the government has increasingly resorted to domestic debt. Combined with the new rules of exchange (convertibility of the Turkish lira), the permanent debt contributed to the rising interest rates and inflation. The contreperformance is managed by the transfer of capital from short-term response to the significant variation in the money. The overvaluation of the Turkish lira increases the trade deficit and undermines the price competitiveness of export products.

Table 5 reflects the change in the structure of financing the public deficit from the date of 1987. The largest is for domestic funding sources, they are closely followed by income from seigniorage. From 2002, the latter method loses considerably in importance.

Until 1997, the Central Bank was financing the Treasury, by advances in the short term, which is a type of seigniorage because the state does not repay the loan and it is also exempt from interest payments. From that date, the Central Bank began to finance less the Treasury to finally cease funding after 1999.

With the convertibility of the Turkish lira, the arrival of short-term capital contributes to the rise in nominal interest rates and inflation by increasing the money supply. The overvaluation of the Turkish lira increases the trade deficit while affecting the price competitiveness of exports.

3.2.2 The case of Tunisia

Channels of financing the budget deficit are limited to three: taxes, debt and seigniorage. In some cases, the financial needs of the state are met by the use of money creation. This type of inflationary financing was often used during periods of instability, ie, when the regular channels of funding are disrupted. This excessive use of «*la planche à billet*» is often questioned. Indeed, economists fear the following sequence: repeated deficits - debt unsustainable - the monetization of debt - inflation.

A presentation that is often opposed another version in which the State Bank (Central Bank) contributes to finance the deficit by creating money to the same state. Despite being prohibited by the proponents of the theory of Central Bank

independence, this Institute advances the Treasury still practiced. This facility can be justified by the poor performance of the tax system in some economies. As indicated earlier, the seigniorage is distinguished from the "inflation tax". The latter concept is broader. It covers the loss of the real value of public debt. This benefit available to the State is void if inflation is correctly anticipated. In general, the authorities have no interest to abuse the monetization of the debt may encourage taxpayers and discourage holders of government securities.

In accordance with the regulations, the Central Bank of Tunisia is regarded as the cashier of the Treasury. She is in charge of regulation, reimbursement and management of public debt. It provides the auctions of Treasury bills that can be transferred by the banks on a second device market. Starting from 2006 and following the amendment of the statute of the Central Bank, the assistance granted to the government in the form of advances have been deleted. (Note 10) These were distinguished in direct and indirect advances and were limited to five and ten percent of ordinary revenues of the government during the past year. Now, the contributions of the Central Bank in the government are organized in accordance with the agreement between the two parties in 1970. The standing advance amounting to 50 million dinars has an interest at 0.5% against 3% for pre-refundable.

Regarding the funding of the government's budget, the major innovation is, however, the substitution of good equipment for treasury bills from 1989. Since then, several other varieties of treasury bills have emerged: Transferable Treasury bonds (1989), Treasury bonds negociable on the market (1993), Bonds equivalent to Treasury bonds (1999), Short Term Treasury bills (1999) and Zero coupon bonds (2006).

Equipment bonds were made by financial institutions in accordance with rules that existed before the reform of the financial sphere. These assets were non-negotiable and causing the creation of private money in favor of the state.

Notwithstanding the year 1986 which experienced a very sharp variation of the budget deficit, the two years 1989 and 1996 saw a sharp rise in the monetary base (see Figure 7). On the whole, the two curves will decelerate at the end of the period, confirming that the deceleration of the money comes with a better control of the budget deficit.

Seigniorage was higher during 1989 and 1996 which saw a significant creation of the money (see Figure 8). A rapprochement with Figure 3 (change in the budget deficit as a percentage of GDP) shows that primarily from 1997 the control of deficit is accompanied by a sharp decrease of seigniorage.

Excluding the two years that have variable outliers, the decomposition of the period into two phases confirms that on average the increase in speed income (H/GDP) is accompanied by inflation and income seigniorage higher average (see Table 6).

Given this presentation, it seems that overall, the Tunisian authorities have not abused the revenue from seigniorage to meet the deficit.

The observation of the terms of the financing of the budget shows that to ensure greater use of seigniorage, the authorities must come to raise their own resources (tax revenue and non-tax revenue) risk taking on additional debt. In the extreme case, a monetization of the deficit would go against the debtors of the government.

It appears that the state benefits little from seigniorage revenue. Rather, the private sector that benefits from the money supply during the study period (see Figure 9).

4. Conclusion

1) In Turkey, seigniorage, in the monetary sense of the term, has a greater weight than previously imagined until the end of 2001, when the Central Bank gained autonomy (institutional reforms put in place from 2001). Until then, the seigniorage was the second source of funding for the state after the internal debt. Nevertheless, the effect of the seigniorage calculated by two different methods began to decrease significantly after 2001, when the Central Bank was proclaimed independent from political authorities.

2) As for Tunisia, the authorities seem to have managed to meet the great economic equilibrium. Keeping inflation at reasonable rates goes through a rather mild a rational use of seigniorage.

In general, the analysis of the funding situation of the state budget shows that:

- The control of public deficit is accompanied by a decrease in the growth of resources and expenditures as a percentage of GDP. Both variables have an average change of 5% from one year to another during the period 2000 - 2007 with a slight advantage for expenditure (5.7% against 5.1%).

- Changes in resources ie, the sum of fiscal resources and nontax resources is mainly attributable to the sharp increase in the second component is due to the proceeds of privatization of national firms. The tidiness of this section is dependent on the ability of public authorities to find ways to offset the decline in tariffs. This solution is further complicated by the law of alleviating the tax burden on companies from 2007.

- The reconstruction of the outstanding public debt is reflected in the gradual reduction of its external debt compared to domestic clearly expressed through the multiplication of long term Treasury bills. Such a sustainable financing modality

implies that public authorities maintain inflation within a reasonable concern for equity. An increase in overall price levels might allow the State to reduce its deficit in real terms, the taxable benefit to the agents at the expense of creditors of the State.

Finally, treatment of macroeconomic data showed the weakness of seigniorage revenue as a method of financing the budget deficit in Tunisia, particularly in terms of its inflationary component (compared to its tax component). In addition, examination of the contribution of the inflation tax to total income provided by the government seigniorage shows the weakness of this component compared to the tax component. The weakness of this part inflationist both as part of the seigniorage revenue of the government is mainly due to the low rate of inflation in the long run, in Tunisia.

It thus appears that the benefit of monetary financing, in the case of the Tunisian economy is very modest. Thus, in this country, increasing the cost of debt may affect the solvency of the State and thus the sustainability of its fiscal policy. It would therefore require a more efficient management of government expenditure and ensure, as far as possible, the coordination of modes of financing the budget deficit.

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Notes

Note 1. In 1999, extra-budgetary funds constituted 0.6% of GNP while they were -1.3% of GDP and -0.9% in 2000 and 2001 respectively (Source: National Planning Institute)

Note 2. The IMF says that about a third of the prices is included in the CPI.

Note 3. Preliminary conclusions of the mission of consultation under Article IV on 9 June 2008 and 16 January 2008.

Note 4. In 2006, an increase in tax revenues was also driven by the profits of the Central Bank of Tunisia, which was the main product of state participation. Central Bank of Tunisia, Annual Report. June 2007.

Note 5. These Treasury bonds to zero coupons. Central Bank of Tunisia, Annual Report, June 2007.

Note 6. Central Bank of Tunisia, Annual Report, June 2007.

Note 7. World Bank Report. October 2004.

Note 8. Central Bank of Tunisia, Annual Reports 2006 and 2007.

Note 9. At the date of 2007, the structure of international debt is composed of up to 58.7% in Euros.

Note 10. Law No 2006-26 of 15 May 2006. Journal Officiel de la République Tunisienne, 19 May 2006.

Table 1. Ratio of public debt and its composition en percentage of GDP, Tunisia

Year	2004	2005	2006	2007
Internal Debt	21,9	21,0	21,7	21,2
External Debt	37,5	37,3	32,2	29,7
Total Debt	59,4	58,3	53,9	50,9

Table 2. Debt service (in Millions of Dinars, Tunisia)

Year	2004	2005	2006	2007
Debt	4756,6	3833,5	3914,4	3921,4
Principal	3486,6	2771,4	2784,6	2739,5
Interests	989,0	1062,1	1129,8	1181,9

International Journal of Business and Management

Table 3. Budget Revenues of the Government (in millions Dinars, Tunisia)

Year	2000	2001	2002	2003	2004	2005	2006	2007
Fiscal Revenues	5678,4	6221,5	6429,2	6653,3	7251,9	7904,3	8469,6	9285,0
Non-fiscal Revenues	1194,1	874,1	1423,3	1166,9	1464,5	1376,0	2082,4	2051,0
Internal Debts (Treasury bonds less than 1 year are not included) (A)	1797,8	1851,1	1760,1	2082,1	2596,8	1601,9	1445,6	1442,2
External Debts (B)	1265,9	1932,6	1608,1	1653,3	1427,7	1407,3	772,3	1015,3
B/(A+B) en %	30,8%	34,7%	30,0%	32,3%	31,5%	24,4%	17,4%	

Table 4. Distribution of seignoriage, Turkey

	Part of State	Part of Private Sector	Total Seignoriage
1987Q3 – 1994Q2	2,7	0,5	3,2
1994Q3 – 2000 Q3	2,8	0,0	2,8
2000Q4 – 2001Q3	10,3	0,0	10,3
2001Q4 – 2004Q4	1,1	0,0	1,1

The observation of Table 4 reveals two main observations:

- First: The private sector has benefited from seigniorage during 1988-1994 only. The amount of the seigniorage has varied between 0.5% and 1% of GNP. During these years, the Central Bank of Turkey has granted loans to the private sector to be able to compensate for actual losses due to high inflation.

- Second: The seigniorage has been an enormous amount during the crisis 2000-2001. He recorded an average 16% of GNP (in the third quarter of 2001 seigniorage reached its highest level with 35% of GNP). This raise reflects the desire of the state to compensate its losses which have been caused by the high number of bank failures and the net outflows in the short term (by putting liquidity into circulation by seigniorage).

Table 5. The modalities of financing the deficit, Turkey

	Net Externe Debt / PNB	Net Interne Debt / PNB	Short-term / PNB	Seigniorage	Deficits / PNB
1987Q3-1997Q1	-0,010	0,090	0,023	0,031	0,098
1998Q1-2003Q4	0,032	0,226	0,000	0,033	0,277
2000Q1-2001Q3	0,010	0,197	0,000	0,071	0,245
2001Q3-2003Q4	0,078	0,230	0,000	0,026	0,335

We note in Table 5, that in the 1990s the external debt in the financing of the budget deficit does not lose its importance, but also that the government is increasingly using the internal debt to repay part of its external debt. The permanent debt of the public sector raises interest rates and inflation.
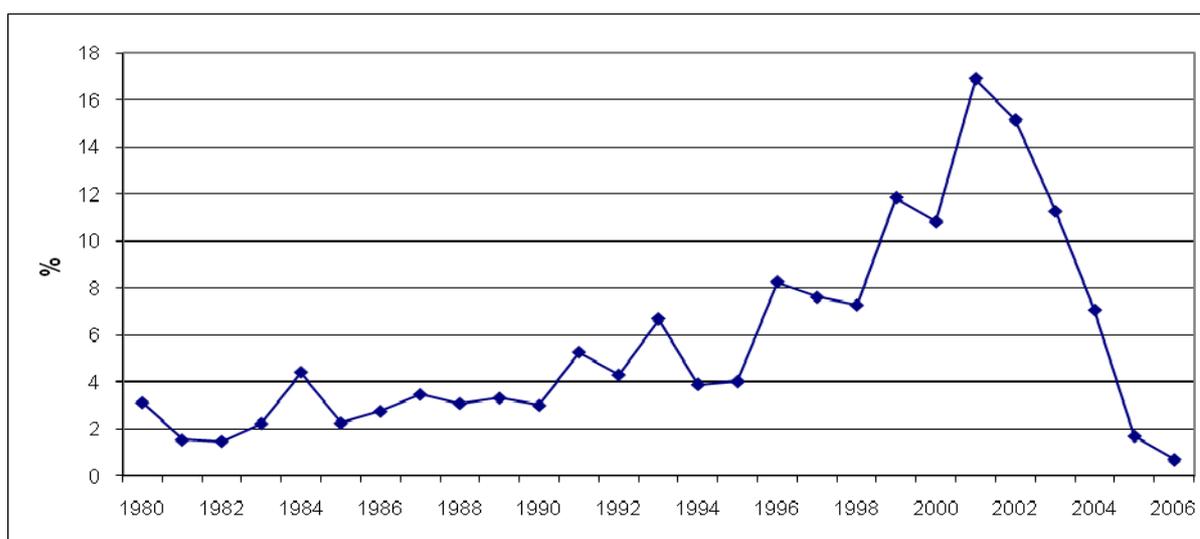
Figure 1. Evolution of public deficit (in % of GDP, Turkey)

This figure shows the substantial and unexpected increase of public deficit as a percentage of GDP during 1980 and 1990 due to the decisions which were intended to reduce the role of the State in the economy.
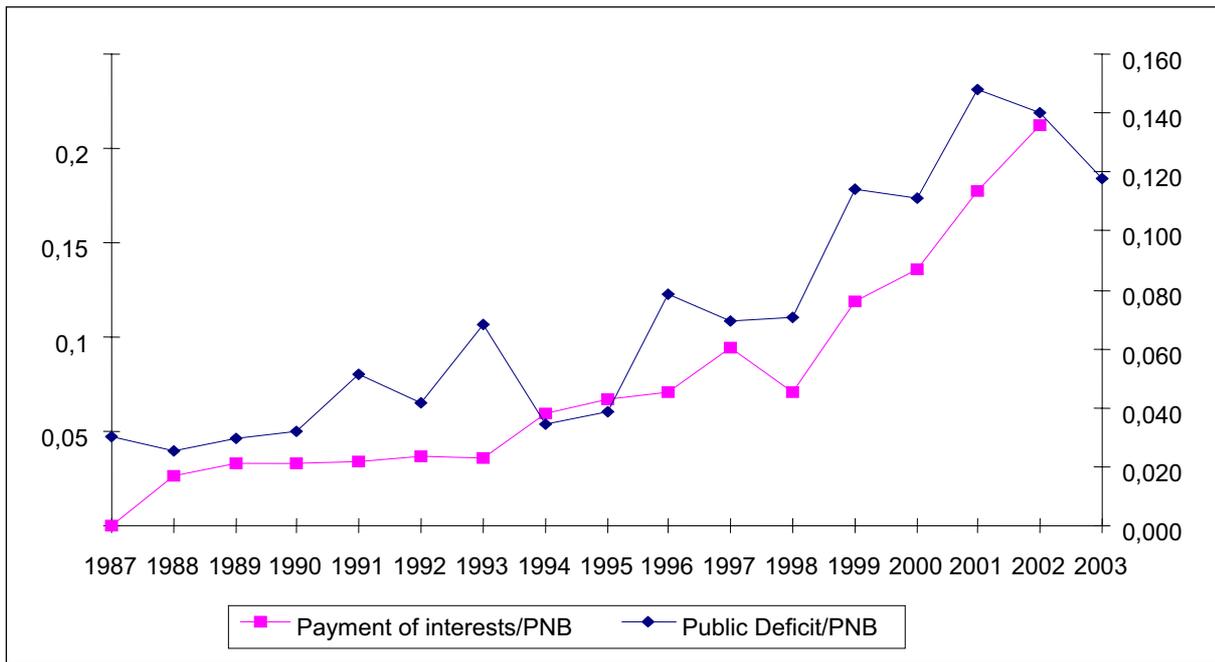
Figure 2. Evolution of part of deficit and payments of interests of consolidated budget (in % of GDP, Turkey)

As seen in Figure 2, there appears to be a strong correlation between changes in the public deficit and changes in interests payment. The increase in debt largely explains the increase in the deficit.
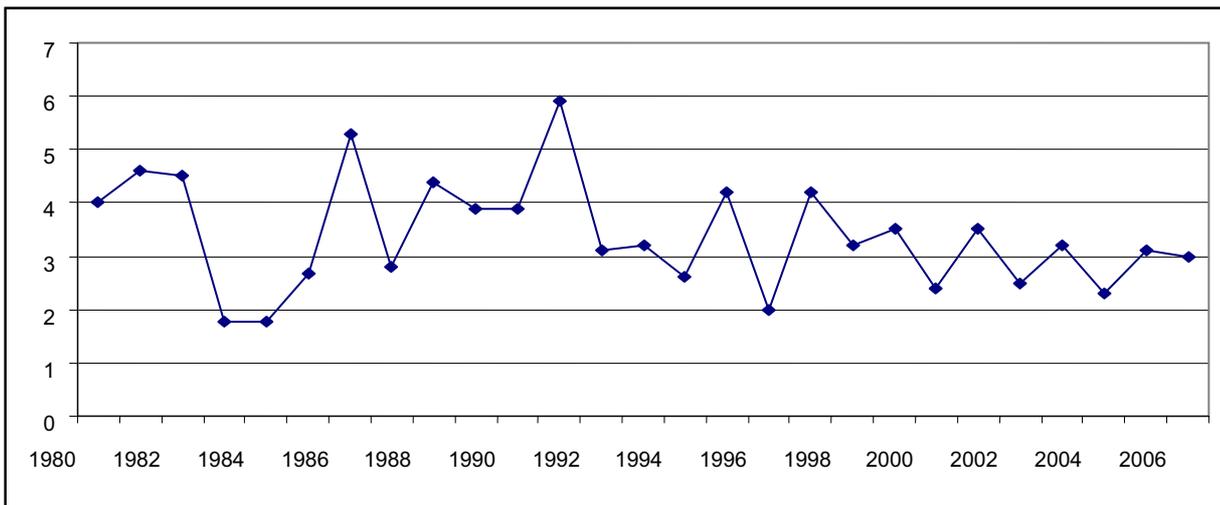
Figure 3. Evolution of budget deficit in percentage of GDP (1980–2006, Tunisia)
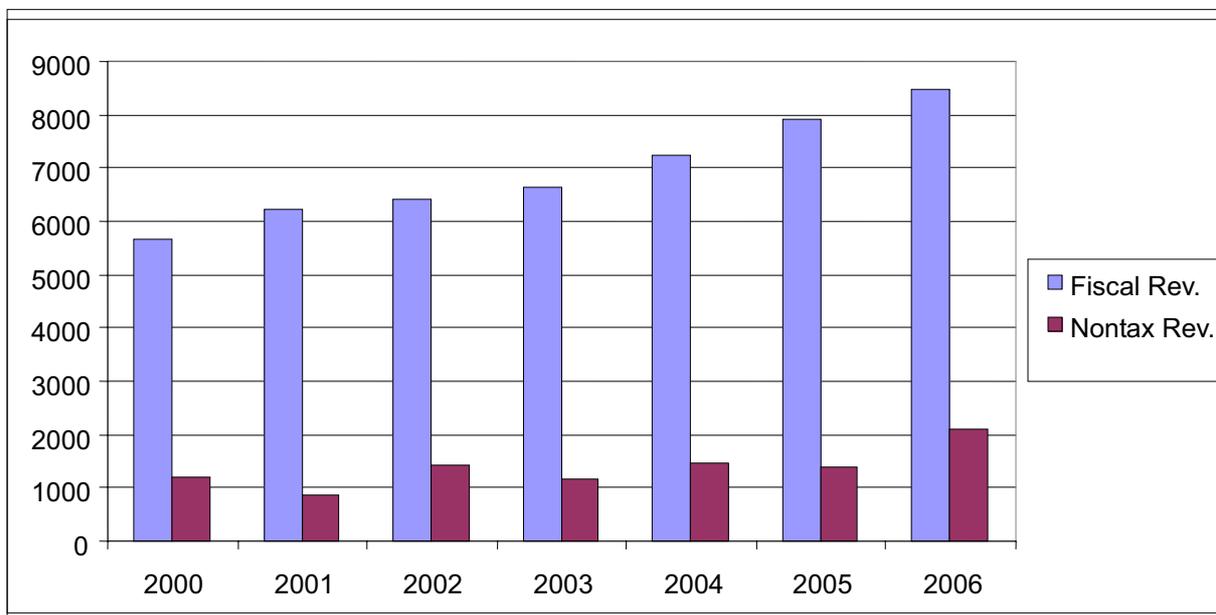
Figure 4. Evolution of fiscal revenues and nontax revenues (2000-2006, Tunisia)
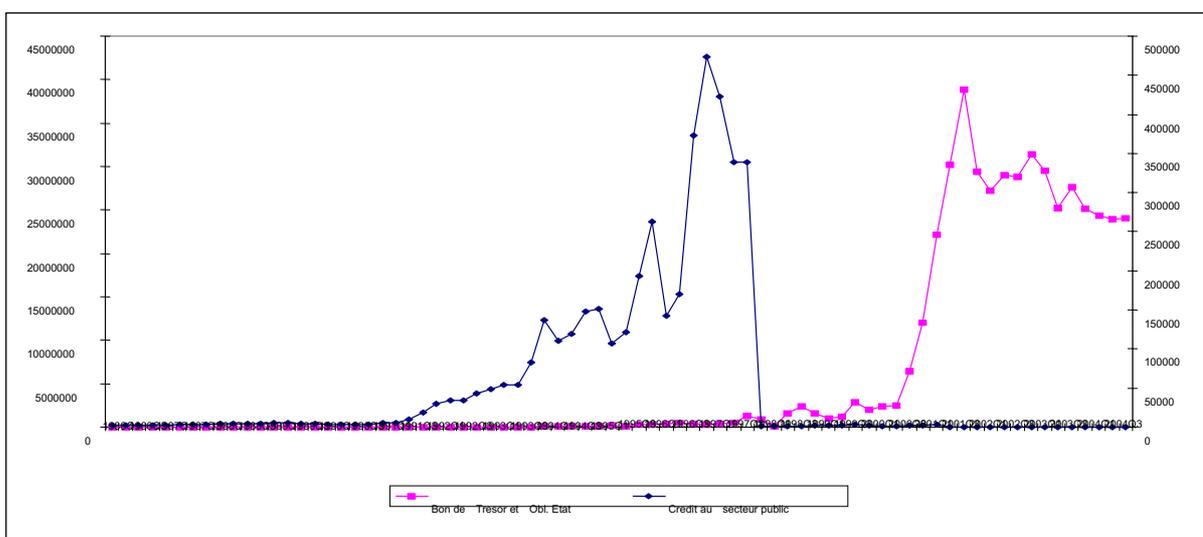
Figure 5. Treasury bonds and credits to public sector in the balance sheet of Central Bank

(in milliards current TL, Turkey)

Figure 5 shows that one of the major events that have influenced deficits and seigniorage as state funding has held in the first quarter of 1998. This is the moment when the short-term advances of the Central Bank towards the Treasury as well as other funding from the Central Bank to the public sector are stopped.
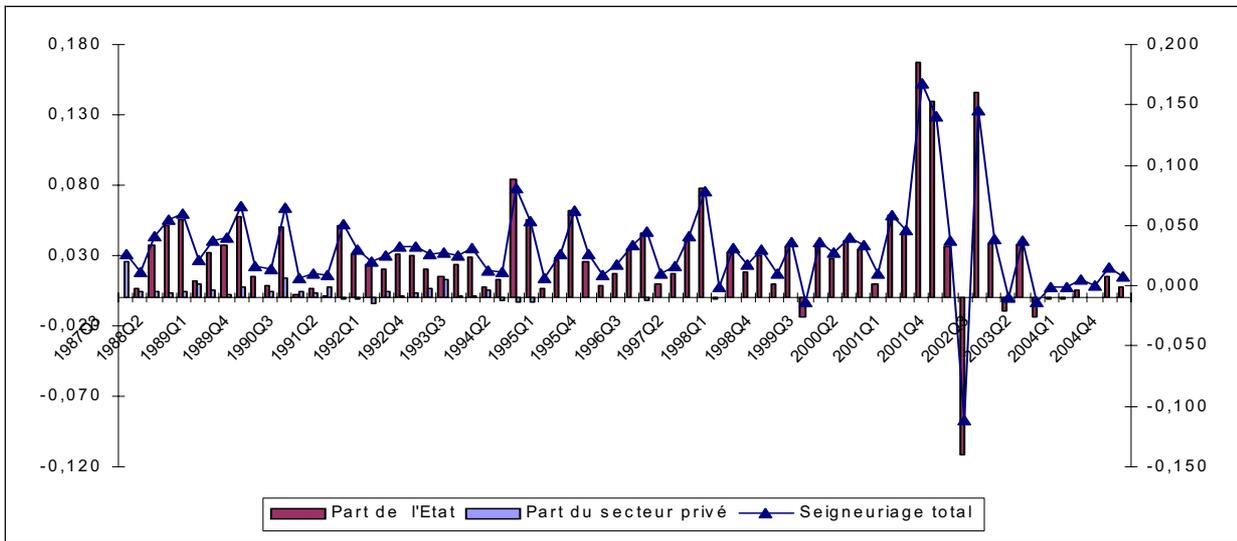
Figure 6. Part of seignoriage in GNP and its distribution between public and private sectors

(1988-2003, Turkey)

Figure 6 reflects the distribution of seignoriage revenue between the private and public sectors. This decomposition has been obtained from the difference between the monetary base and adjusted monetary base (the monetary base less loans to the private sector and private institutions by the Central bank of Turkey). Results shown in Figure 6 are summarized in Table 4 given the periods previously suggested.
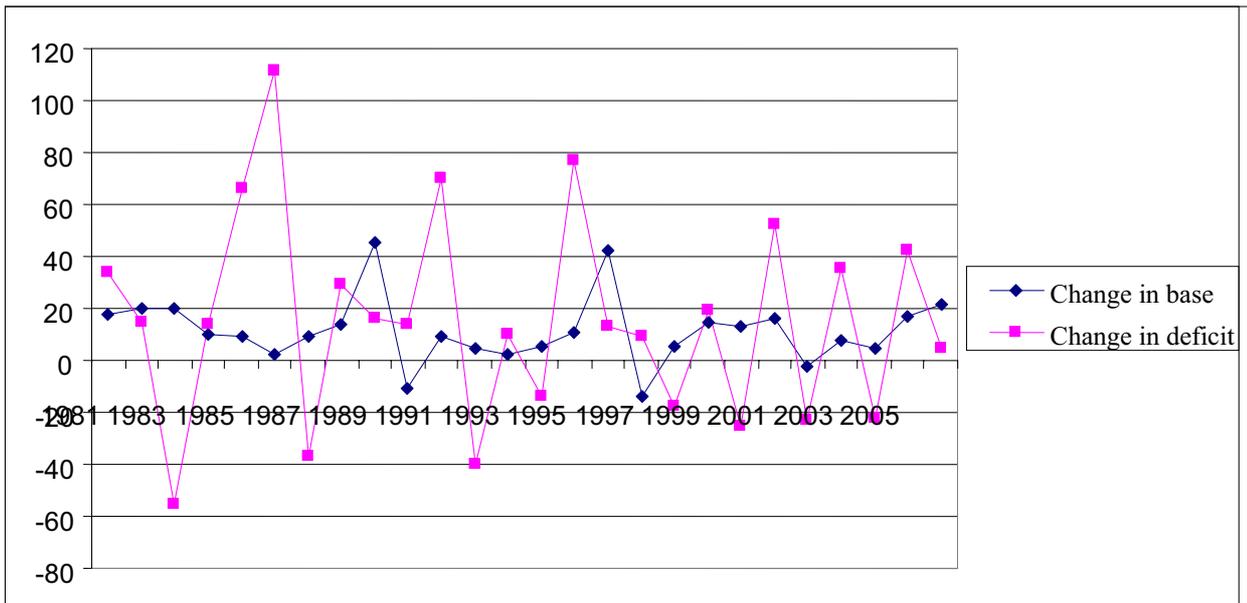
Figure 7. Evolution of monetary base and public deficit, Tunisia
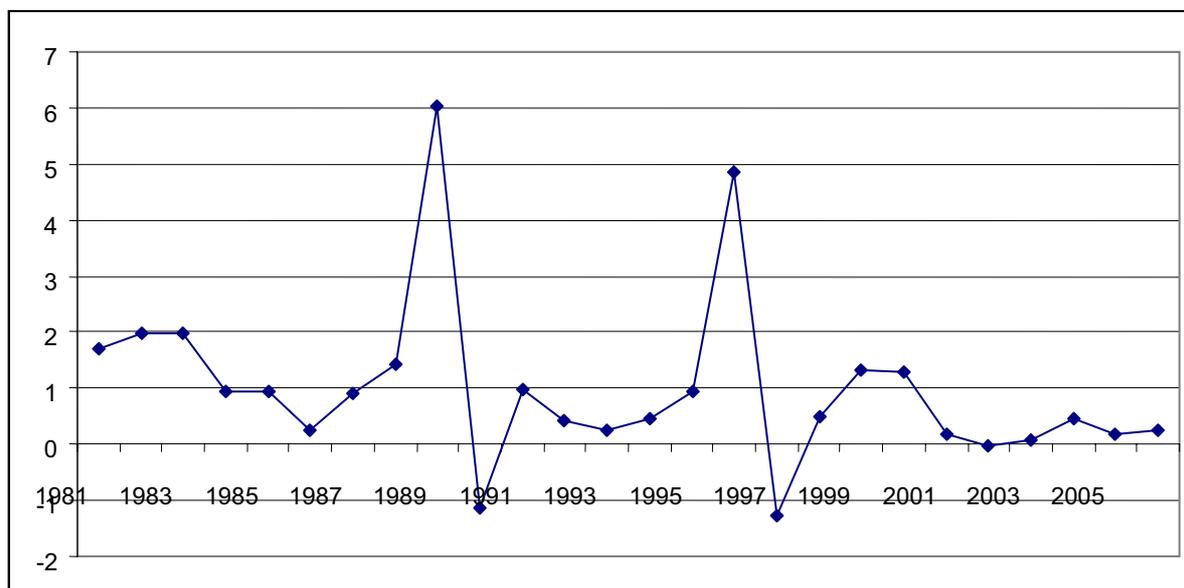
Figure 8. Variation of seignoriage's revenue (1981-2006, Tunisia)

Figure 8 shows the evolution of seigniorage revenue calculated as the product of the growth of the monetary base and the inverse of income velocity of monetary base.

Table 6. Inflation, seignoriage and velocity (1981–2006, Tunisia)

Period	Inflation	H/PIB	Revenue of seigneuriage
1981 – 1996	7, 7%	9,6%	0,85%
1997 – 2006	3,1%	5,1%	0,29%
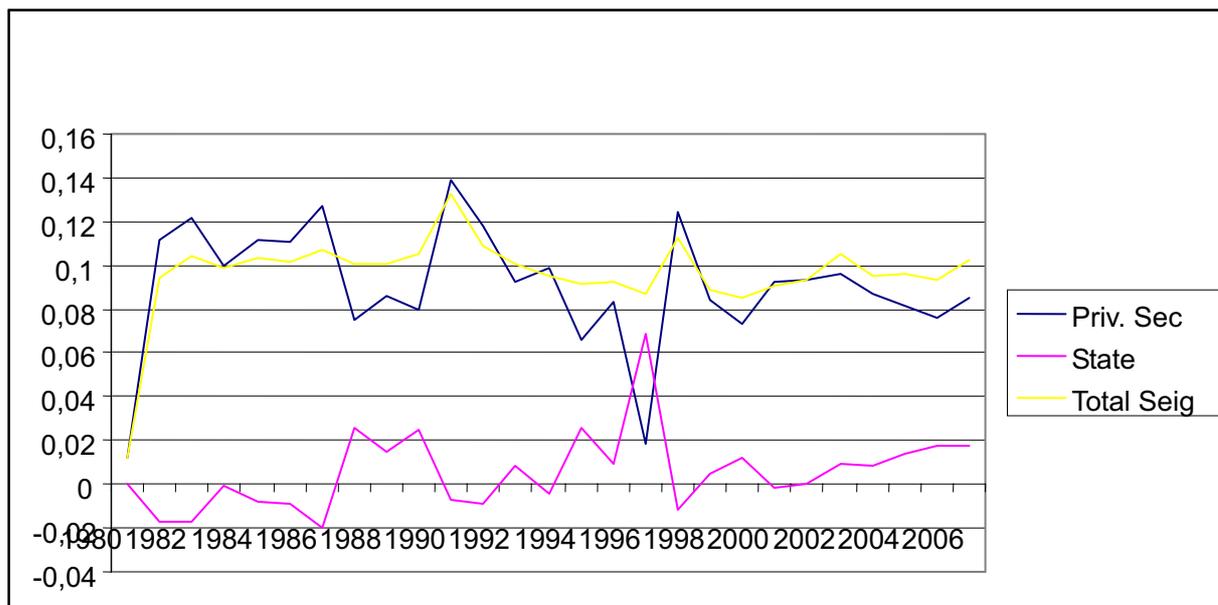
Figure 9. Evolution of seigniorage and its components (1980-2006, Tunisia)

Appendix
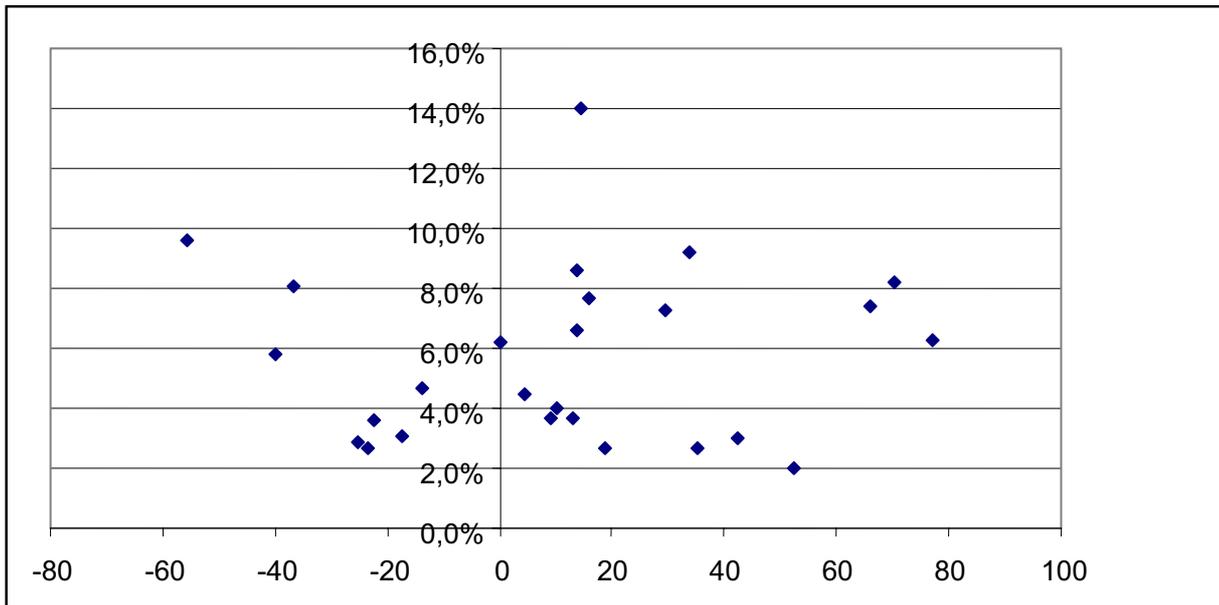
Figure A1. Evolution of public deficit and inflation rate, Tunisia

Table A1. Evolution of outstanding Treasury bills given maturities, Tunisia

Maturity	2002	2003	2004	2005	2006	2007
13 weeks	2,3	==	==	==	==	
26 weeks	9,0	==	==	==	==	
52 weeks	**25**	**26,2**	12,7	8,8	8,0	8,4
2 years	4,4	==	1,2	3,9	==	
3 years	6,3	5,6	5,8	10,1	10,7	
4 years	22,1	23,4	12,1	==	==	
5 years	5,47	10,5	==	11,6	10,3	9,8
6 years	==	==	==	==	4,2	6,5
7 years	==	==	==	==	1,5	5,6
10 years	17,2	15,2	**48,5**	**48,5**	**50,3**	**53,7**
12 years	7,8	18,9	16,8	16,8	14,6	13,8
15 years	==	==	==	==	==	1,9

Table A2. Principals Parameters of Financing (in %), Tunisia

	2005	2006	2007
Total Debt / PIB current prices	129,9	123,6	119,7
Intern Debt / PIB	81,9	81,4	80,9

Table A3. A Summary of Total Debt in Tunisia in MDT

Designation	2003	2004	2005	2006
Total Debt (TD)	**43.112**	**46.281**	**49.043**	**51.203**
State	19.307	20.519	21.693	22.239
Others Non-Financial Agents	23.805	25.750	27.423	28.964
Intern Debt	**27.625**	**29.277**	**30.936**	**33.741**
State	6.778	7.310	7.667	8.956
Others Non-Financial Agents	20.847	21.967	23.269	24.785
Financial System	**23.628**	**25.445**	**27.054**	**29.612**
State	3.289	3.825	4.166	5.164
Others non-Financial Agents	20.339	21.620	22.888	24.448
Capital Markets	**3.997**	**3.832**	**3.882**	**4.129**
Monetary Market	**357**	**228**	**280**	**236**
State	0	0	0	0
Others Non-Financial Agents	357	228	280	236
Bond Market	**3.640**	**3.604**	**3.602**	**3.893**
State	3.498	3.485	3.501	3.792
Others Non-Financial Agents	151	119	101	101
Extern Debt	**15.487**	**17.004**	**18.106**	**17.462**
State	12.529	13.209	14.025	13.283
Others Non-Financial Agents	2.958	3.795	4.081	4.179

Confirmatory Research on a Representative Method
of Describing Knowledge Task Process

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Abstract

This paper presents research findings that knowledge task process representation can be used to enhance the efficiency of knowledge tasking. This representative knowledge tasking can simulate knowledge tasking in the same way used in artificial intelligence and knowledge engineering. It can describe the process of how to solve the Tower of Hanio in predicate logic, and analyze the problems that exist in knowledge representation. Based on cognitive science it can advance the approach to represent knowledge in Mind Operation (MO) by case study and use confirmatory factor analysis to validate the ubiquity of MO. The data supports the 9 element mind operation concept set. It further provides a basic concept and methodology to measure and optimize tasks, and explores a way of knowledge representation in AI.

Keywords: Knowledge task, Mind operation, Knowledge task process representation, Knowledge representation, Confirmatory factor analysis

1. Introduction

Today knowledge itself creates wealth. Drucker states that increasing and improving the efficiency of knowledge work is "the necessary requirement to survive in developed countries" (Peter F. Drucker, 1999). He also emphasized that "improving the efficiency of knowledge work will be the primary task in the new century … as the improvement of the efficiency of manual work was in the last century" (Peter F. Drucker, 1999). The research on improving productivity of knowledge workers has just begun. Today, what we know about it is as much as the research on manual worker productivity was one century ago (Peter F. Drucker, 1999). Even the concepts of knowledge work and knowledge workers are still not unanimous (Li Yong-jian, Ma Shun-dao, 2004). The research on this field and especially about how to manage the process of knowledge work has advanced very slowly (Thomas H. Davenport, Robert J. Thomas, Susan Cantrell, 2002).

The brain process has traditionally been treated as a "black box" in management research and practice. Most research focuses on how to support knowledge work, such as promoting, group management, and the environment of knowledge work (Russell Curtis & David Leon, 2002; Tomas Hellstroèma, Ulf Malmquistb, Jon Mikaelssonc, 2001; E.Kevin Kelloway & Julian Barling, 2000). The mental labor management based on the forward feedback (the competent traits) and feedback (the promoting and control), lacks the process control and will inevitably result in the phenomena such as "Philippe" software crisis (the efficiency of the work is inverse ratio with the cube root of the size of group) (Li Yong-jian, Ma Shun-dao, 2004). To solve the problem resulting from the lack of process management, we must shift from the goal management to the basic logic followed by scientific management: control the result by controlling the process (Li Yong-jian, Ma Shun-dao, 2004). The control and management of the process is the foundation of scientific

management. The primary problem we need to address is how to describe and represent the process of knowledge work. This is a fundamental problem related to the brainwork process or "black box" (Wang lei, Li Yong-jian, 2006).

In the middle of the last century, after the behaviorist Edward C. Tolman advanced the term "medium variables". Psychologists then begun to explore the inner process of the mind, trying to uncover the "black box". Cognitive psychology research was conducted on cognition and intelligence. Not only the intuitive and philosophical discussion, but also studies based on modern scientific approaches (Chen Lin, 1982&1993).

2. What is knowledge task process?

The definition we give to knowledge tasking is based on the following conceptions:

1) Accepting the modern scientific definition of knowledge levels and conditions, we can define knowledge tasking as "complex and non-observed intelligence in the human brain" or regard it as "creationary intellective activity," or "insight". We therefore regard knowledge task processing as a "black box".

2) If we regard knowledge task as a wealth creating process, from the point of view of economics, neither research nor representation is necessary for knowledge task processing.

3) If we think human work is all the activities dominated by the brain and regard knowledge tasks as "more mental labor, less manual work", then it would get into the dissension of "more or less" while ignoring the discussion of the essential characteristics of knowledge process.

In order to represent the knowledge task process effectively, the knowledge task definition used in this research is not intuition of creative mental labor but the sequential process of mechanical mental labor. This definition facilitates the study's research and analysis of the process of knowledge tasking.

2.1 From the Cognitive psychology point of view knowledge tasking is the human brain's operating process using subjective symbols

Undoubtedly, knowledge tasking is intellectual activity processing. The description of knowledge tasking equates to the description of human intelligence as activity processing. As long ago as the beginning of 20th century, Thorndike proposed a "special factor theory". It suggests that intelligence is comprised of many special capacities, and he inaugurated research on how to describe and interpret human intellective activities. Human intellective activities are very complex phenomenon that has produced numerous research. This paper hopes to contribute to several of these theories related to knowledge task.

Guilford brought forth his "three-dimension" theory of intelligence in 1959. This theory considered that intelligence was a three-dimensional space structure comprised of **operations** (thinking methods, including five components: cognition, memory, divergent thinking, converge thinking, evaluating) × **contents** (objects which thinking operates on: figure, symbol, semantic meaning, action) × **results** (outcomes when certain operation acts on certain content: cell, kind, relation, system, transform, meanings). In this three-dimension structure, intelligence is not only mind operation, but also a three-dimension body that has close relationships with operational objects and operational results.

In the middle of the 1970's, the cognitive revolution began to impact on the research field of intelligence. The most representative research was Sternberg's Triarchic, "Theory of Human Intelligence" and the PASS theory put forward by Das. Their consensus in intelligence research was a transforming focus from traits analysis to interior process. They depicted the mind mechanism of intelligence operation by way of the cognitive process. They used the process analysis method of information-process, and described the interior process of intellective activities more quantitatively.

A component was the basic cell of intelligence operation analysis in Sternberg's Triarchic Theory of Human Intelligence. Sternberg thought was that a "component is a type of basic information processing. It operates on the basis of interior representation of objects or symbols. Such a process can transform a sensation input into a concept representation; it also can transform a concept representation into a movement output" (Sternberg R.J., 1985). Sternberg divided components into metacomponents, performance components and knowledge-acquisition components. Metacomponent was the highest-level control process. It played a role on constituting plans, choosing strategy, supervising execute, appraising results and adjusting feedback. The performance component was the component that a subject used when he implemented task operations with various strategies. Its function was implementing the dictates of metacognition and carrying out various idiographic cognitive process operations. Some performance components would only be used in a multitude of special tasks. Universal performance components, such as coding, combination and comparing of stimulating, inference etc., gained more attention (Sternberg R.J., 1985). Those could be viewed as basic mind operations, or mind operations at the "therblig" level.

Cognitive psychologist therefore regards knowledge tasking as the human brain's mind operating process on subjective symbols.

2.2 From the cognitive science and artificial intelligence point of view; knowledge tasking is the human brain's information and calculating process

Artificial intelligence compares the brain to the computer. It regards the mind's process as being similar to computer processing; however, it explains the mind's process as more delicate and elaborate (Fu Xiao-lan, Liu Chao, 2003). It uses basic rules in a physical symbol system to explain the mind's complicated psychological phenomena and regards the process of solving problems as information and calculating processing (Simon H.A, 1983).

Nobel Prize winner Simon, renowned for his work in cognitive science, regarded the mind's operation as the calculating process of human brain. The human brain's operation or processing uses certain symbols. This transformation of semantic symbols are restricted by rules. For example, the addition formula, it mainly formed vision-Arabic numerals representation and audition-verbal representation of the multiplication formula (Zhou Xin-lin, Dong Qi, 2003). It could be said that in the sense of symbol transformation, whether human brain or computer, all form a system of symbol operation and processing. The human brain's cognition and intelligence activities can all be simulated through computer coding into symbols (Yan Ping-fan, Zhang Chang-shui, 2002). Therefore, "the human brain is a computer, thinking is calculation, cognition is symbol calculation" (Yan Ping-fan, Zhang Chang-shui, 2002).

In the abstract, computing is the mapping or transformation based on a symbolic string. Computing is the process of changing an existing string into a presupposed string by limited steps. The computing process function simply transforms the strings, e.g., transforming "1 + 1" into 2 is an addition calculation, and x^2 into 2x is differential coefficient calculation. Theorem proving, letter translation, numerical calculation and non-numerical calculation are all computing. Transforming the poem "flocks and herds appear as grass bends to wind" into an image of grazing livestock is also a kind of computing. It transforms literal information symbols into image information symbols. The algorithm of this computing is called mind operation. Such transformation is fulfilled by the human brain through the mind operation of "reproductive imagination".

Cognition information processing theory has five basic theoretic hypotheses. Recursive decomposition hypothesis states that any complicated (un-original) information event could decompose into lower level and more detailed components to describe it. In other words the cognitive process consists of more simple cognitive processes (these processes also could be decomposed into much more simple cognitive process), and any knowledge task process also could be decomposed into more simple mind operations and described by mind operation chains. Adelaman (American South-California University) first published the DNA computer theory in the journal of "Science" in 1994. The DNA computer theory proposes that cognition and thinking are kinds of recursive computing in molecule level. So, knowledge tasking is similar to information processing. It is symbol transformation by the process of the brain's computing operation.

Obviously, in the point of view of cognitive science and artificial intelligence, knowledge task process is human brain's information processing of subjective symbols within the brain. It is human brain's calculating process.

2.3 From the scientific management point of view, mind operation is the "therblig" of knowledge tasking - a succession of mind operations which compose knowledge task processing

Before the concepts of "basic human actions" defined as "therblig" has brought forward, human manual work was in the state of the "gray box". In 1881, Taylor found that "basic motion" in a certain industry also exists in other industries (Frederick W. Taylor, 1911). At the same time, through research on actions in the brickwork industry, Gilbreth put forward a concept he called "therblig", which is similar with "basic motion". Using the concepts of "basic motion" and "therblig", Taylor defined manual work as "a series of actions and work is only a series of simple actions". Since manual operations tasks are only a series of simple actions, the processes of different types and nature of operations tasks can also be interpreted as "motion" or "therblig". To transform consecutive manual work or operations task processes to discrete process comprised of "motions" or "therbligs" —the method is called "motion and time studies". It makes operations task become a controllable process whose method can be optimized and measured in time. Consequently, the origin of Science Management was established.

Operations tasks are operational processes that human physical forces act on physical objects, likewise, knowledge tasks are operational processes that human mental efforts act on symbol information. So, the processes that human mental efforts act on symbol information, and then at a higher-level consecutive knowledge task process, can be transformed into a discrete process. This is comprised of a series of "basic motions" and interpreted as "therbligs". The motions of operation tasks are muscles and bone activities. The knowledge task's "motions" and "therbligs" could be regarded as the mind operations of the human brain. Similar to defining manual work and operation tasks by "basic motion" and "therblig", we can describe knowledge task process effectively with mind operations.

So, from the point of view of scientific management, knowledge is a series of mind operation processes.

2.4 Knowledge tasking is the human brain's mind operating process on subjective symbol

In summary, from the "process" point of view knowledge tasking is the human brain's succession of mind operating processes on subjective symbol. Such process is mechanical, ordinal, calculable and form-repeated (not semantics and content repeated) process (Li Yong-jian, Ma Shun-dao, 2004).

It needs to be explained that this paper only discusses <u>what</u> knowledge task process is, not <u>why</u>. That is the field of cognitive science. So, the manners of mental labor (thinking, cognition or information processing manners including "inspiration" and "insight"), all could be regarded as discrete points or the "therbligs" of mind operation. This definition avoids the difficulties of description and research caused by the problems such as "inspiration". Because the goal of this paper is to demonstrate the use of limited mind operation concepts to describe limitless different knowledge task processes. This could be used to optimize task methods, measure task time, and subsequently improve management efficiency.

3. The formalization of the process of knowledge tasking

The object of our research focuses on the formal representation of knowledge work process. We explore the problem in two aspects: artificial intelligence and psychology.

3.1 Knowledge representation of knowledge task processing

Artificial intelligence is based on the simulation of the human brain's working principles. We also can analyze the knowledge working process by analyzing the knowledge representation. The problem solving process advanced by Newell and Simon created the formal research into artificial intelligence in 1950s. Research in artificial intelligence has spread into two fields: Symbolism and Connectionism. Symbolism emphasizes the functional simulation and regards the basic unit of intelligence as symbols. The cognitive process is symbol computing by symbol representation. This is the traditional way to study artificial intelligence as psychological symbol processing. Connectionism emphasizes the structural simulation, using the neural-psychological method that is the method of artificial neural network (Liu Zhong-pei, Sun Jing, 2001). These two ways to study artificial intelligence is the new trend in amalgamation: the manipulation of symbols is realized in the sphere of connectionism (Wei Hui, Pan Yun-he, 2000). The aim of artificial intelligence is to let a machine fulfill the work that needed the intelligence of human beings (Minsky M, 1968). The key to have the machine solve the problem as a human brain is how to include the experts' experience and how to represent it in the acceptable and useable way by computer (Feng Ding, 2006). The knowledge representation is the foundational problem in artificial intelligence. Predicate Logic, procedural Rule, Frame and Semantic Network are the popular knowledge representations in artificial intelligence (Feng Ding, 2006).

If we regard the computer as the physical realization of symbolic system, we could formalize the problem to be solved. Formalization is to represent the objects as uniform abstract symbols and set rules. In a broad sense, formalization refers to all the objects being sensed and combined. They need to find the corresponding material in the consciousness (such as images and sounds). The mental activity is fulfilled by organization of these materials. In narrow sense, the formalization is to set up a series of algorithms that can be carried out by the computer (Wang Qian-ling, 2004).

So the representation of the knowledge task process is the formalization of the process. We use predicate logic to describe the typical program problem "Tower of Hanio" as followed (Tan Hao-qiang, 1999).

3.1.1 Using predicate logic representation to solve the process of the "Tower of Hanoi"

The problem is as follows: there was a tower in ancient time, and 3 sets of plates are located in the tower. To begin with the set b1 had 64 plates. The plates were different, and the bigger ones are always under the smaller ones. (See the fig.1) An old monk wanted to transfer the 64 plates from the set b1 to set b3. He is only permitted to transfer one plate at a time. During the transfer process the bigger ones should always be under the small ones in the 3 sets.

Insert Figure 1 here

Suppose the a_i as plates, i=1,2,3,…n, $a_{i+1} > a_i$; For explaining it more clearly, we take only 3 plates(n=3)

Suppose the b_1, b_2, b_3 as the 3 poles.

Suppose the U as "on…pole, and…is above…" U (b_1, a_1, a_2) indicates is on the b1pole and a1is above a2.

Suppose the M as "…was transferred from…to…"M (a_1, b_1, b_2) indicates that a_1 was transferred from b_1 to b_2. U and M can describe the whole process of transfer.

(0) initial: U (b1, a1, a2), U (b1, a2, a3), U (b2, 0, 0), U (b3, 0, 0);

(1) step: M(a1, b1, b3), and U(b1, a2, a3), U(b2, 0, 0); U(b3, a1, 0);

(2) step: M (a2, b1, b2), and U(b1, a3, 0), U(b2, a2, 0), U(b3, a1, 0);

(3) step: M(a1, b3, b2) and U(b1, a3, 0), U (b2, a1, a2), U(b3, 0, 0);

(4) step: M(a3, b1, b3), and U(b1, 0, 0), U(b2, a1, a2), U(b3, a3, 0);

(5) step: M(a1, b2, b1), and U(b1, a1, 0), U(b2, a2, 0), U(b3, a3, 0);

(6) step: M(a2, b2, b3), and U(b1, a1, 0), U(b2, 0, 0), U(b3, a2, a3);

(7) step: M(a1, b1, b3), and U(b1, 0, 0), U(b2, 0, 0), U(b3, a1, a2);

(8) the goal: U(b1, 0, 0), U(b2, 0, 0), U(b3, a1, a2), U(b3, a2, a3).

Of course, this is not a unique representation, and there exists a lot of other ways to represent it (Feng Ding, 2006; Zhang Xiao-jiang, Liu Chang, 2005).

3.1.2 The limitation of knowledge representation

Knowledge representation is the arithmetic model of intelligence simulation. It does not explore the nature of intelligence or define inner process of human intelligence, especially for traditional symbolism (Wei Hui, Pan Yun-he, 2000). Though we can use predicate logic to describe the Tower of Hanio clearly, it is not the real way in which brain's solving process works. We can prove this by analyzing the phases of programming.

The program is a typical knowledge task. The program can be divided into two phases. In the first phase, the programmer should solve his own cognitive problem using natural language to understand the aim of the program. The second phase is to solve the cognitive problem of the computer (Li Yong-jian, Wang Lei et al, 2006). By coding knowledge into a form that the computer can understand makes the computer fulfill the task needed for intelligence. The choice of how to represent knowledge reflects the developer's cognition of simulated intelligence behavior. But not every representation is the real reflection. Both the symbolism and connectionism are only the approximate representation of the mental process. The mind operation focuses on the mechanism of intelligence, pursuing the objective reality (Wei Hui, Pan Yun-he, 2000). We can get to the new cognition of the intelligence by exploring the biological and psychological process of intelligence itself. The new way to study the subject indicates the advanced in the methodology of AI (Wei Hui, Pan Yun-he, 2000).

The knowledge presentation in AI can solve the cognitive problem of the computer, and provides the indirect way to describe the process of knowledge work. But it can't solve the process management problem in knowledge task, such as optimization and measurement. So, we should find the more direct way to describe the knowledge task process.

Here we use the cognitive process theory and mind operation to describe the knowledge work process.

3.2 The MO representation of the knowledge task process

3.2.1 The knowledge task process is "a series of activities" (a series of MO's)

Before classic scientific management, the process of manual movements was a "black box" similar to knowledge tasking. Since Taylor and Gilbreth brought forward the concepts of "basic movement" and "therbligs", manual processes began the "white box" which can be described and measured. This became the foundation of scientific management. If we describe the process of knowledge task by activities, the inner process of it can turn the "black box" into a "white box". In cognitive science, the activity is the MO.

Wu wenjun, the academician who achieved the highest scientific technology honor of china, considers the most probable subject to be mechanized should be mathematics. That is the typical mental labor. In fact, math is stricter, more concise and valuable than other subjects. So math is easier to be mechanized than other mental labor. In the view of Wu, take the problem (1) as an example. The task is to identify as many mental functions as possible; the requirement is that the addition of two digits is equal to the product of the two digits.

$$4\frac{1}{2} + 1\frac{2}{7} = 4\frac{1}{2} \times 1\frac{2}{7} \tag{1}$$

According to 3 persons thinking aloud, we analyze the process of MO as follows:

Step 1: information perception. To identify what kind of problem this is: addition and multiplication.

Step 2: information extracting. Activate relative knowledge and experience for the addition and multiplication information stored in the brain.

Step 3: **problem identification**. Carify the problem and requirement: make the addition of the two digits equal to the product of the two digits.

Step 4: **Transformation**. According to previous knowledge about fractions, we transform the example (1) into (2) below

$$4\frac{1}{2} + 1\frac{2}{7} = 4\frac{1}{2} \times 1\frac{2}{7} \Rightarrow \frac{9}{2} + \frac{9}{7} = \frac{9}{2} \times \frac{9}{7} \tag{2}$$

Step 5: character comparing. Compare the two numerators and denominators, and try to find the similarity and difference.

Step 6: character extracting. The two numerators are the same, and the two denominators are different.

Step 7: reasoning. The addition of two denominators is equal to the numerators.

Step 8: Character conformity. The common numerator (9) of the two improper fractions is equal to the addition of the two denominators (2+7).

Step 9: supposing. If the common numerator of the two improper fractions is equal to the addition of the two denominators, the product of the two fractions will be equal to their addition.

$$\text{If } a + b = k, \text{ then } \frac{k}{a} + \frac{k}{b} = \frac{k}{a} \times \frac{k}{b} \tag{3}$$

Step 10: validating. According to the supposing, find some example to validate.

$$2\frac{1}{4} + 1\frac{4}{5} = 2\frac{1}{4} \times 1\frac{4}{5} \tag{4}$$

Step 11: symbolic describing. To describe logical thinking in nature or artificial language.

Step 12: standardization. Standardizing the result of step 10, and program as follows.

Void f (int x, int y)// define the function containing the two parameters to fulfill the requirement of task (1)

{

if(x>0&&y>0) // the two digits are positive number.

{

int z,l,m,n,p;//define the assistant parameters;

z=x+y;//ascertain the common numerator;

l=z/x;m=z%x;// transform the first proper fraction into mixed number;

n=z/y;p=z%y;// transform the second proper fraction into mixed number;

if(m&&p)//when the two are all in fractional forms

{

printf("%d(%d/%d)+%d(%d/%d)=%d(%d/%d)*%d(%d/%d)\n",l,m,x,n,p,y, l,m,x,n,p,y);// output the result

}

else if(!m&&!p)//when both of then are positive integers

{

printf("%d+%d=%d*%d\n",l,n, l,n);

}

else if(!m)//when the first is positive integer

{

printf("%d+%d(%d/%d)=%d*%d(%d/%d)\n",l,n,p,y, l,n,p,y);

}

else// when the second is positive integer

printf("%d(%d/%d)+%d=%d(%d/%d)*%d\n",l,m,x,n, l,m,x,n,);

}

else

printf ("They can't be formed a proper formulation");// the other situations.

}

3.2.2 The necessary declaration

What should be pointed out is that even for the same knowledge task, each person has a different mind operation chain.

What MOs people will use are not just limited to the ones mentioned above, and the sequence of the MO in the chain is not unique. Different types of knowledge works have the different MOs, and the same MO in different types of knowledge task is not in the same position of the chain, just like the therbligs in manual labor (Wang Jin-hua, 1997).

Is MO ubiquity in knowledge task? What are the common MOs in knowledge task? We will try to use the research to test the ubiquity of MO and its ability to use the MO to explain the process of knowledge task.

4. The confirmatory research on MO

4.1 Research purpose

To explore whether observed data will conform to the mind operation concepts set model (see fig.2) by LISREL (Linear Structural Relations). Confirmation requires the following: First, whether there exist MO elements in knowledge task process. Second, whether there is a proper structure of the elements.

4.2 Research method-The introduction of Structure Equation Model (SEM)

SEM is a universal and primary linear statistic modeling technology. It is the combination of statistic analysis methods in the fields of econometrics, sociometrics and psychometrics. SEM also uses simultaneous equations to ask for answers, but it doesn't require strict assumptions or limitations, and simultaneously, it allows both independent and dependent variables to exist. SEM is primary a confirmatory technology. It is used to ensure that a certain model is reasonable but not to seek and discover a suitable model for researchers. In our research, we use SEM to confirm whether our hypotheses are reasonable.

There are five primary steps when using SEM (Bollen, Kenneth, J. Scott Long, 1993):

(1) Model specification: according to theory or former research, researchers need to specify the assumptive initial theoretic model before model estimation.

(2) Model identification: this step determines whether the research model has the only answer of parameter estimation. In some situations, as the model is specified mistakenly, the parameters can't be identified and it can't get the only estimation values. As a result, the model has no answer.

(3) Model estimation: the model parameters can be estimated with several different methods. The most popular model estimation methods are maximum likelihood and generalized least squares.

(4) Model evaluation: After the acquirement of parameter estimation values, it needs to appraise whether the model and data are fit, and compare with alternative model's fitness indices.

(5) Model modification: If model can not fit well to the data, the model must be modified and specified again. In such situations, the researcher needs to determine how to delete, add and modify the parameters of model. Through parameters re-specification, it can improve model's degree of fitness. Researcher can determine the model's re-specification according to the model modification indices provided by LISREL soft and the results of test of initial model paths. Once model is specified again, it needs to repeat the five steps above. A model that fits well usually repeat these steps many times.

The five steps above are the groundwork when researching a theoretic model by SEM. Especially, the confirmatory factor analysis (CFA) is also a type of SEM method.

4.3 The hypothesis for the concept model of the MO

In light of the analysis from the point of view of both the AI and cognitive psychology, we can regard the process of knowledge task as the process of information symbol transformation (Simon H.A, 1986). In the view of modern cognitive ergonomics, knowledge tasking is the reasonable sequence of MO (Wang Jin-hua, 1997).

The Gilbreth's initiated the method that screened and analyzed the movements of task with cine-cameras and calculagraphs. It broke down human being's task movements into three types with seventeen basic motions in all (named "Therbligs"). They were: stretching, grasping, moving, assembling, applying, disassembling, unclenching, checking, searching, choosing, planning, aiming, pre-aiming, holding, resting, staying and delaying (Frank B. Gilbreth, 1912).

WF (Work Factor) divided human operational movements into eight types under the consideration of four variables—the body parts, move distance, manual control level and resistance or weight. They were carrying, snatching, pre-aiming, assembling, using, disassembling, brain processing and unclenching.

MTM (Methods Time Measurement) divided human operational movements into stretching, carrying, rotating, pressing, running, grapping, orientating, unclenching, disassembling, eye-moving and body-movement and so on. By analyzing the variables of movement level, movement distance, movement form, resistance or weight, movement type or character, and together with simultaneous motion, combined motion, compound motion scene, it included three forms of MTM-1, MTM-2 and MTM-3, based on the movement's degree of accuracy.

In 1959, Wofac Corporation took the lead to put forward the method of Variable Factor Program (VFP), which studies the brainwork. In 1967, it brought forward Wofac Mento-Fator System (WMFS) based on Predetermined Motion-Time Study (PMTS). WMFS had determined the task element system which included fourteen elements: sight movement, sight watching, looking, nerve transmitting, distinguishing, estimating, identifying, deciding, remembering, recalling, calculating, confirming, transforming and attention transferring.

Using the perspective of the Scientific Management's process the analysis of knowledge task process can be thought of being comprised of "a series of" mind operations which are similar to the "basic motions" or "Therbligs". From the perspective of cognitive science, knowledge task is an operational (transforming) process of the mind on information symbols. The mind's operation is an algorithm of knowledge tasking (transformative rule). Based on these definitions, the mind's operation can be viewed as "operational modes of information processing", while knowledge task process is the set of these information-processing modes (mind operations). We can then present simple manipulative definitions of mind operation concepts on the "therblig" level as follows:

(1) **Metacognition.** Simply speaking, metacognition is cognition and adjustment on cognitive activity processes. It plays a role in constituting plans, choosing strategies, supervising execute, appraising results and adjusting feedback. It is the highest-level control or fountainhead of the following MOs.

(2) **Distinguishing.** The ability to discern and confirm expressive forms of information, every kind of perception, discrimination and recognition. Its meaning is similar to the "cognize" defined by Guilford.

(3) **Memory.** Maintains existing knowledge, searches and memorizes new information.

(4) **Transforming.** Changes the forms of information. For example, transform letter information into table information.

(5) **Imagining.** Changes and transforms images into new one. For example, we read the ancient poetry sentence "Flocks and herds appear as grass bends to wind"; it would appear a beautiful picture in our brain. This is the result of imagination. When we imagine, we all depend on the images already stored in our brain.

(6) **Character extracting**. Breaking down the whole object (cognitive object) into parts and extract the characters of cognitive objects. It has three levels: ①action thinking level, such as tearing down the clock's parts one by one within brain; ②imagery thinking level, such as breaking down the image of a tree into roots, branches and leaves; ③abstract thinking level, such as disassembling the chemistry equation.

(7) **Character integrating**. Combining the parts of the cognitive objects, i.e., characters, attributes, within the brain. "Character integrating" and "character extracting" are both dialectic mind operations. They also have three levels: ①motion thinking level, such as assembling the clock's parts one by one within the brain; ②imagery thinking level, such as synthesizing the image of roots, branches and leaves into a tree within the brain; ③abstract thinking level, such as combining and establishing simultaneous equations.

(8) **Reasoning.** Concluding from known or assumptive facts, or inferring a new judgment from one or more known judgments.

(9) **Concretization**. Applying general conclusions to idiographic things; it is a type of deduction.

It is necessary to explain two points about the MO enumerated above. First, MO's can be subdivided by degree and whether or not they are dependant on practical demands and conditions. Second, it can define and add new MO's. This is very much like the differences and specialties among MTM, WF and MOD in IE (Industry Engineering).

According to the theories of cognition science and the definitions given above, together with Structural Equation Model and confirmatory factor analysis (Barbara M. Byrne, 1998), the structure of the MO concepts set could be considered as a full model, showed in Figure 2.

Insert Figure 2 here

Metacognition is the highest level processing operation. It plays a role on planning, supervising and adjusting to the other mind operations in the whole knowledge task process. So, metacognition is an exogenous latent variable (ξ), the other mind operations are all endogenous latent variables (η) of metacognition (Sun Shang-gong, 2002). X_i and Y_i are vectors comprised of ξ and η's observational indices respectively.

4.4 The design of the questionnaire

According to the frame of scales' development process, Spector subdivided Likert's three stages into five steps (Rhonda L. Hensley, 1999): (1) define the construct; (2) design the scale; (3) pilot test the scale, confirming the exact connotation of all items; (4) administer the scale and perform item analysis to determine whether the items form scales. Examine and emend the items' intelligibility; (5) validate and normalize the measures.

The structure of the questionnaire is consistent with the theoretical hypothesis framework. It presents the operational definition of every observed variable. The nine basic mind operations compose nine dimensions of the questionnaire

and each dimension includes three to six items. There are three sources of the questionnaire items' content. First, the theoretical research of scientific management, cognitive science and intelligence; second, the connotation of each mind operation in knowledge task process; third, the results of previous surveys and small sample pretesting. In order to ensure that the population or subjects understood the meaning and content of each item, we examined the intelligibility of the mind operation with each item. They all reached the level of "comparative understanding easily" or better. For example, for the factor of metacognition we designed 5 items of observed variable. Some items were as follows: "Examine the correctness of thought when analyzing and solving problem(x_1)", "Adjust and control the thinking process consciously when analyzing and solving problem(x_2)", "Appraise one's own work processes, methods and results(x_3)". Then we tested the comprehensibility of the items. All items tested above the "easy to understand" level. This guaranteed the exact understanding of each item.

According to the purpose and hypothesis of the research, we apply the five-point Likert scales. The dimension of questionnaire was frequency of use: often, many, unclear, less, once in a while.

4.5 The collection and summary of the data

We used the questionnaire to collect the data which verified that knowledge task is the mechanism of brainwork, and knowledge task processing is the information processing of human the brain. For this study, we chose workers that perform mental (brain) functions and especially software engineers as subjects. This was done considering that programming tasks is a kind of typical knowledge process (Wang Lei, Li Yong-jian, 2006).

The sources of subjects in this study were students in the following programs: Master of Software Engineering (MSE) in University of Electronic Science and Technology of China (UESTC), Master of Business Administration (MBA) in UESTC. 235 questionnaires were distributed and 191 completed questionnaires were returned. In these valid questionnaires, there were 118 MSE and 73 MBA; 143 males', 36 females' and 12 people didn't fill "sex".

The data used SPSS11.5 for statistical processing and LISREL8.53 for confirmatory factor analysis (CFA). We eliminated four items whose least component load was below 0.36. 41 items were processed using LISREL8.53 analysis and the data samples composed by the 191 subjects was processed within the LISREL8.53 - according to the structural equation method.

5. Study results

5.1 Results and Discussion

We inputted the covariance matrix of target variables (measurement variables), the affiliation of targets and latent variables (namely, the structure). Then the software package LISREL (Joreskog K. G, Sorbom D, 1993) was able to estimate the parameters, such as the relationships of targets and latent variables, latent variables and latent variables, the parts which the model cannot explain and the measurement error of targets, and so on. The values of these parameters could reflect the strength of each relationship. Besides, the software package could compute whether the model put forward by the researchers fit to the sample data (whether the model could express the data) (Hau K. T, Cheng Z. J, Chung C. M, 1996; Kong C. K, Hau K. T, 1997; Marsh H. W, Hau K. T, 1996).

The resultant structure included two highly correlated aspects; the elements of structure and relationships among these elements. According to the study's theoretical analysis and confirmatory analysis based on structural equation method, using the LISREL8.53 program and maximum likelihood estimation, the research gained the SEM fit indices results of observed data, shown in Table 1.

Insert Table 1 here

The program chose fit indices as follows: Chi-square (χ^2), NNFI and CFI (critical value is 0.9), RMSEA (critical value is 0.08) (Wen Zhong-lin, Hau Kit-Tai, Herbert W. Mars, 2004). χ^2 goodness-of-fit test is the most often used measure standard about a models degree of total fit. According to the critical values of each index, the data in Table 1 showed that the structural equation model described in Figure 1 fit the observed data; the fit indices were comparatively perfect. In this paper, RMSEA equaled 0.06 and less than 0.08 (RMSEA=0.06 < 0.08). The absolute index RMSEA weighed the fit degree between the theoretical model and sample data (Wen Zhong-lin, Hau Kit-Tai, Herbert W. Mars, 2004). This indicated that observed data's ability to interpret knowledge task process with a 9-factors model showed in figure 1. The knowledge task process of existing nine factors and the structural relation which metacognition controlled the other mind operations was also verified. Knowledge task process can be interpreted by mind operational concept structure showed in Figure 1. The nine factors were comprised of metacogniton and other eight factors controlled by metacognition. The structure of mind operation concepts set is shown in figure 3 below.

Insert Figure 3 here

In practice, mind operations are always highly related to operational objects, and always operates on the object in certain conditions and environment. So, the expressive forms of mind operation are various (like the intelligence's complex forms). They are numerous, complex and observed variables of mind operations (this paper has confirm 41

entries in confirmatory analysis). Through confirmatory analysis, this paper sums up in variable and un-reductive components from the diverse process and phenomena of knowledge task, and uses them to verify the structural form and related hypothesis (Figure 2). The final results of the model showed in Figure 3. Exogenous latent factor metacognition was the "upriver" variable of nine endogenous latent variables; it indicated that metacognition played a role on planning, supervising, adjusting and controlling. This agreed with the perspective of cognitive science and intelligence theory.

5.2 Conclusion and implications

This study reached the following conclusions and implications

1) AI and knowledge engineering provide an indirect way to describe the process of knowledge tasks. But, it cannot solve the problem of how to manage the process, for example, the optimization and measurement of the tasks. We must explore a direct way to describe the process of knowledge work. This is not only the requirement of the knowledge task management, but also indicates advancement in AI (Wei Hui, Pan Yun-he, 2000).

2) The confirmatory research indicates: the MO set that can represent the process of knowledge task is composed by 9 MOs and the 8 elements that are controlled by metacognition very much as the "therblings" in MTM, WF and MOD. Which elements are parts of the MO varies according to practice (Wang Jinhua, 1997).

3) The optimization of knowledge task is achieved through the reasonable design of the "sequence of MOs" (Wang Jinhua, 1997). This is similar to the optimization of manipulation tasks required to design the sequence of "therblings". To optimize the MOs of knowledge tasks requires further study of more and different knowledge tasks in order to explore and conclude principles and methods.

4) According to the principle of PTS in IE we can relate the process of knowledge work to MOs and provide the object to be measured. We can consider measuring the "MOD" of the MO or the "intelligence quotient" of MO.

In summary, in depth exploration and standardization of the MO representation of knowledge task is a potential way to realize the scientific management of knowledge tasks. It also indicates an advancement in the methods of AI (Wei Hui, Pan Yun-he, 2000). All discussions about process management knowledge tasks have fundamental theory significance both in knowledge management and AI (Peter F. Drucker, 1999; Wang Jin-hua, 1997).

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Table 1. Fit indices values between theoretical hypothesis and observed data

χ^2/df	NNFI	IFI	CFI	RMSEA
1.669	0.916	0.924	0.924	0.0593
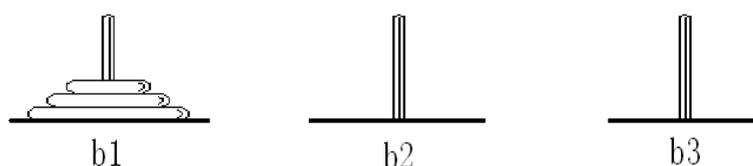
Figure 1. Sketch map of "tower of Hanoi"
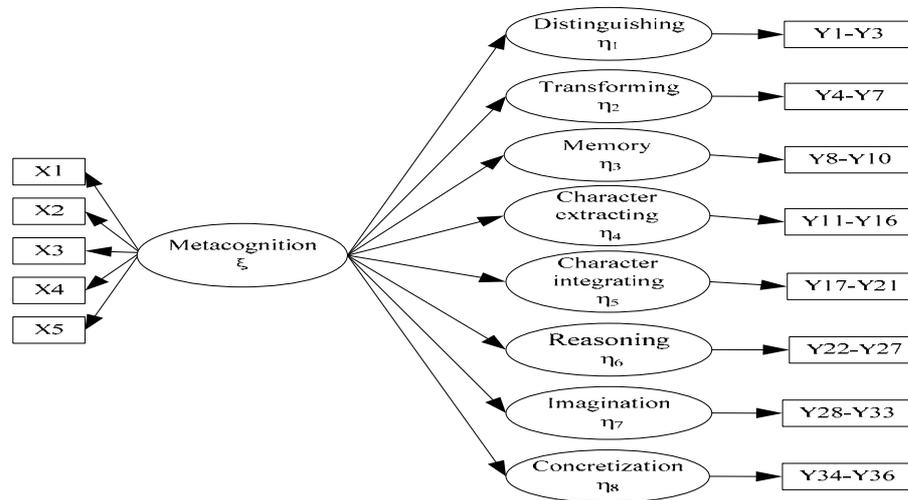
Figure 2. Model of Mind Operation concepts for describing the knowledge task process
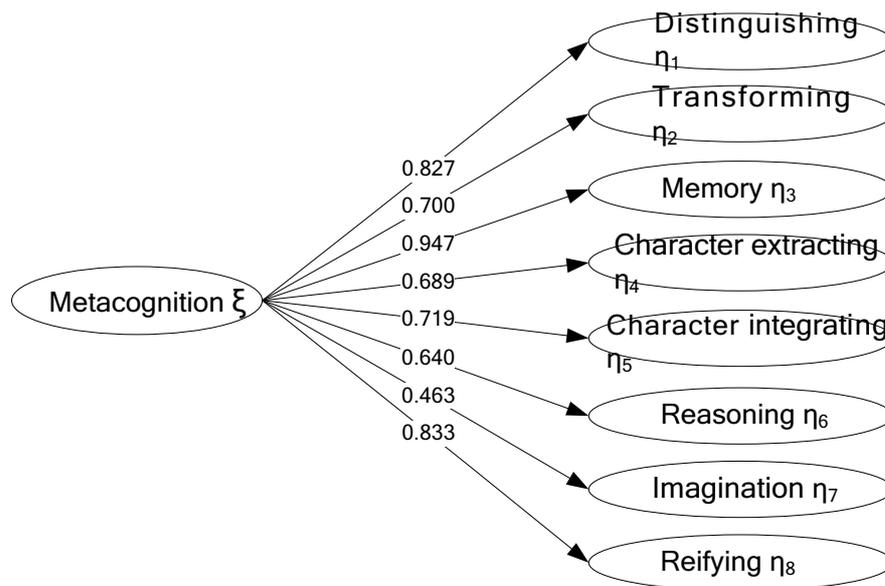
Figure 3. Structure of mind operation concepts set

Entrepreneurial Orientation and Performance Relations

of Malaysian Bumiputera SMEs: The Impact of

Some Perceived Environmental Factors

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Abstract

This study aims to verify direct relationship between entrepreneurial orientation (EO) and performance and the interaction of the perceived environment as third variable on EO-performance relation. The study was conducted on 210 firms among Bumiputera small and medium enterprises (BSMEs) in three states of northern Peninsular Malaysia, namely Penang, Kedah and Perlis. Using factor analysis and varimax rotation, each component was loaded with three items that has value of factor loadings more than .40. Factor analysis identified four factors of EO as independent variable namely, autonomy, innovativeness, proactiveness and risk taking dimensions. Perceived environmental factors consisted of five dimensions of munificence, turbulence, competition, market dynamism, and restrictiveness identified as moderators. Three dependent variables identified as return on sales (ROS) return on assets (ROA) and return on capital (ROC) used in the study. Four control variables of sole proprietorship; partnership, private limited company and small-sized firm were dummy-coded to ascertain their influence in performance. EO dimensions are multidimensional where each of the four dimensions is a separate component. Each of the components consists of three items. Hypothesis testing utilized four steps hierarchical multiple regression analysis. Four steps model shown in F-value and positive beta coefficient shows the statistical significance of direct relation and interaction effect. In the first step of the analysis, two

control variables directly affected ROS. The second step of the analysis found direct relation of three EO dimensions related to higher performance. In the third step, all perceived environmental factors found directly related with performance. The fourth step detected interaction effect where significant model and beta coefficients further tested with post-hoc probing by curve analysis on 2x2 graphs. Perceived environmental factors moderated the relationship between EO and performance.

Keywords: Entrepreneurial orientation, Performance, Small and medium enterprises

1. Introduction

Small and medium-sized enterprises (SMEs) play a significant role in the business system of both developed and developing economics (United Nations, 1993). In Malaysia, Bumiputera's SMEs were the sector represented more than 50% of the population. Bumiputera were sons of the soil of Malaysia constituted the major population among other races such as Chinese, Indian and others. Bumiputera continually fail to secure larger share for them in Malaysian economy. Since the inception of the New Economic Policy (NEP) in 1970, they manage to share less than 20% of the economy even until 2005. In the recent five-year economic plans to enhance Bumiputera SMEs' performance in Malaysia (2005), 35% of fund for Bumiputera SMEs business development allocated between year 2001-2005 showed unexpected level of performance in most sectors of the economy (Economic Report, 2005). Hitam (2005) noted that studies in entrepreneurship development emphasizing in entrepreneurial strategy should help to overcome business performance among Bumiputera SMEs. Unfortunately, studies in Bumiputera SMEs entrepreneurship development were very limited and most of entrepreneurship studies in Malaysia explored basic characteristics and personality of the Bumiputera SMEs' entrepreneurs (Mohamed, 1990; Hashim, 2000). Among entrepreneurship development studies is the entrepreneurial strategy among Bumiputera SMEs' firms was at the basic stage (Hashim, 2000, 2002). Therefore, more in depth studies emphasizing entrepreneurship development should help in enhancing Bumiputera SMEs' performance. This study explored Bumiputera SMEs entrepreneurial orientation (EO) as one of the entrepreneurship strategy to enhance the performance (Hitt, Ireland & Hoskisson, 2003; Miller, 1983; Wheelen & Hunger, 2002). The dimensions of EO in this study was the firm-level construct adopted from Khandwalla, (1977), Miller and Friesen (1982), Miller (1983), Covin and Slevin (1989), Stevenson and Jarillo (1990), Covin and Covin, (1990), Naman and Slevin (1993), Lumpkin and Dess (1996), and Miles, Covin and Heeley, (2000).

The Bumiputera SMEs model of EO and performance is incomplete without environmental contingencies affecting the relationship (Lawrence & Lorsch, 1971). The study explored the impact of perceived environmental munificence, dynamism and hostility in the relationship (Covin & Slevin, 1991) where these contingent variables found to be influential moderators (Covin & Slevin, 1991). Past studies proved inconsistent results in the relationship (Covin & Slevin, 1989; Miles, Covin & Heeley, 2000; Miller, 1983; Miller & Friesen, 1982, Covin & Covin, 1990; Dess, Lumpkin & Covin, 1997; Kreiser et al., 2002; Lumpkin & Dess, 2001). Reasons for the failure among Bumiputera SMEs were firstly, due to weaknesses in their strategic framework to harmonize firm's entrepreneurship strategy and environment in determining the performance (Hashim, 2000, 2002), and due to limited knowledge and ineffective implementation of the entrepreneurial strategies at appropriate level of firm development (Abdullah, 1997; Chee, 1986; Hashim, 2000, 2002; Shari & Endut, 1989).

This study investigated how each EO dimension of Bumiputera SMEs owners and managers related to the performance and how perceived environmental munificence, dynamism and hostility affect the relationship. Five dimensions of EO, 3 perceived environmental and objective performances construct operationalised in the study.

Previous research in the area of entrepreneurship found that Bumiputera SMEs' performance provides great and general importance to managers as well as the policy maker and society. There is lack of knowledge on which entrepreneurial factors influence Bumiputera SMEs performance and how they influence the performance. This leads us to specific research questions as follows:

1)   How do each Bumiputera SMEs EO dimension related to performance?

2)   How does perceived environmental munificence, dynamism and hostility affect the relationship between each of Bumiputera SMEs EO dimension and performance?

2. Literature Review

2.1 Main Effect of EO on Performance

Studies in EO began in the early eighties, and researchers continually found its significant effect on firm performance (Covin & Slevin, 1991; Dess, Lumpkin & Covin, 1997; Lumpkin & Dess, 1996; Zahra & Covin, 1995). Furthermore, argument in EO dimensions posed some debates among researchers. Some studies treated EO dimension as unidimensional, however other studies proposed each EO dimension is multidimensional (Kreiser, Marino & Weaver, 2002; Lumpkin & Dess, 1996, 2001). Three original dimensions of EO measured in level of innovativeness, proactiveness, and risk taking proposed by Miller (1983) recently added with autonomy and competitive aggressiveness

in Lumpkin and Dess (1996).

Each EO dimension affected firm performance differently (Kreiser, Marino, & Weaver, 2002a; Lumpkin & Dess, 1996, 2001). High innovativeness shows positive relationship with sales growth, while proactiveness is positively related to sales level, sales growth, and gross profit (Kreiser et al., 2002b). On the other hand, risk-taking produces inverted "U-shaped" curvilinear relationship with sales level and sales growth (Begley & Boyd, 1987; Kreiser et al., 2002; Miller & Friesen, 1982), where risk taking showed positive effect on performance measure to a certain level and beyond that level the increase in risk taking started to show negative effect (Begley & Boyd, 1987). In other studies, proactiveness and competitive aggressiveness are differentially related to performance in different circumstances (Kreiser et al., 2002; Lumpkin & Dess, 1997, 2001). Innovative and proactive action were found not equally critical in determining firms' success (Kreiser et al., 2002) where innovative behaviors were critical in pursuing coherent technology strategy (Zahra, 1996) on the other hand, proactiveness was more important for first-mover firms in gaining significant advantage over competitors (Lieberman & Montgomery, 1988) and Sim and Teoh (1997) claimed proactiveness as main determinant among Malaysian firms.

Entrepreneurial firms may exhibit all or some of the entrepreneurial orientation's dimensions but they may differ in strength and direction of relationship (Lumpkin & Dess, 2001). Firms that exhibit high innovativeness and proactiveness represent entrepreneurial firms (Miller, 1983; Miller & Friesen, 1982; Khandwalla, 1977). However, entrepreneurial firms' propensity to take risk is between low to moderate level (Begley & Boyd, 1987; McClelland, 1961) and Kreiser et al. (2002) proved that risk taking relates to performance in curvilinear or u-shaped manner, hence:

H1: Entrepreneurial orientation is significantly related to performance

H1a: Autonomy is positively related to performance

H1b: Innovativeness is positively related to performance

H1c: Proactiveness is positively related to performance

H1d: Risk taking dimension shows curvilinear relationship with performance

H1e: Competitive aggressiveness is positively related to performance

2.2 Impact of Perceived Environmental Factors on Innovativeness-Performance Relation

Perceived environmental factors tend to encourage innovativeness. Zahra (1996) found that the favorable perceived environment acted to encourage research and development spending within firms. However, only sales growth explained innovativeness in perceived environment whereas, sales level was not statistically significant and gross profit was negatively related (Kreiser et al., 2002). Lumpkin (1996) claimed that availability of resources allows sufficient expenses and expertise in technological development in establishing and marketing new product, hence:

H2: Firm's innovativeness will be strongly associated with high performance

   when perceived environmental factors is high.

H2a: Firm's innovativeness will be strongly associated with high performance

   when perceived environmental munificence factors is high.

H2b: Firm's innovativeness will be strongly associated with high performance

   when perceived environmental dynamism is high.

H2c: Firm's innovativeness will be strongly associated with high performance

   when perceived environmental hostility is high.

2.3 Impact of Perceived Environmental Factors on Proactiveness-Performance Relation

Perceived environmental factors support proactive behavior in both sales level and sales growth performance but not gross profit (Kreiser et al., 2002). Strategic opportunities are readily available in perceived environment where proactive firms will be able to capitalize these opportunities and create competitive advantage in the market (Lieberman & Montgomery, 1988), hence:

H3: Firm's proactiveness will be strongly associated with high performance

   when perceived environmental factors is high.

H3a: Firm's proactiveness will be strongly associated with high performance

   when perceived environmental munificence is high.

H3b: Firm's proactiveness will be strongly associated with high performance

   when perceived environmental dynamism is high.

H3c: Firm's proactiveness will be strongly associated with high performance

when perceived environmental hostility is high.

2.4 Impact of Perceived Environmental Factors on Risk Taking-Performance relation

Risk taking in perceived environmental factors showed positive relationship when Lumpkin (1996) iterated that "it is an environment that invites new entry and supports development aimed at fulfilling unmet demand." It is also likely that excessively hostile environments discouraged firm from taking unnecessary risks (Zahra & Garvis, 2000). Other argument was that even risk taking managers would be discouraged from taking large-scale risk in extremely uncertain environment (Smart & Vertinsky, 1984). A study proposed that firms operating in munificence environments were more inclined towards propensity to take risk with ready resources and favorable environment (Smart & Vertinsky, 1984), supported in Kreiser et al (2002) who found sales level and sales growth was positively explained by risk taking. However, Kreiser et al (2002) proved otherwise when gross profit was found not significant and negatively related. Risk taking in perceived environmental factors offered higher payoffs (Lumpkin, 1996) due to such hospitable environment with sufficient resources to compensate failures (Lumpkin & Dess, 2001), hence:

H4: Firm's risk taking will be strongly associated with high performance when

perceived environmental factors is high.

H4a: Firm's risk taking will be strongly associated with high performance when

perceived environmental munificence is high.

H4b: Firm's risk taking will be strongly associated with high performance when

perceived environmental dynamism is high.

H4c: Firm's risk taking will be strongly associated with high performance when

perceived environmental hostility is high.

3. Methodology

3.1 Sampling Frame

The sampling technique used in this research was proportionate random sampling due to the following reasons; firstly, to increase sample's statistical efficiency, and secondly to provide enough data for analyzing the various population (Cooper & Schindler, 2001). SMEs constitute those small and medium firms operating in the industry from various types such as manufacturing, general business such as wholesaling, retailing and restaurant and agricultural (Hashim, 2000). The capital invested was less than RM2.5 million, number of employees less than 150 persons and annual turnover less than RM25 million. The population in the study comprise of 610 firms in three states on the northern peak of Malaysian Peninsular.

3.2 Respondent

The owner or top management personnel represent the respondents who suppose to be the most knowledgeable person in providing the information. The responses will be representing firm's response. This is due to the objective of getting the organization-level measures and should help in reducing common method variance (Dess et al., 1997; Lumpkin & Dess, 2001; Podsakoff & Organ, 1986). The study used mail survey method in data collection procedure to overcome social desirability bias, this method was found good in getting financial information and personal behavior (Ones, Reiss, & Viswesvaran, 1996). The selected firms will be contacted through mail where each firm was provided with three sets of questionnaires and a stamped envelope for returned questionnaires.

3.3 Research Instrument

Entrepreneurial orientation, environmental dynamism and hostility measures were adopted from Miller and Friesen (1982), Khandwalla (1977) and Covin and Covin (1990) with a total of 18-item scale ranging from 1 (Strongly Agree) to 7 (Strongly Disagree). On the other hand, environmental munificence adopted from Schultz, Slevin and Covin (1995) four-item, seven-point scale. Demographic information of firm's size and industry type were used as control variables and dummy coded in the analysis. Other information was used to describe the respondent and firm characteristics. Performance was measured by quantitative data obtained from the actual outcome in return on sales (ROS), return on assets (ROA), and return on investment (ROI). The performance collected within 3-year period (2002 – 2004) to avoid short-term effect.

3.4 Hypothesis Testing

The hypothesis testing level of acceptance or rejection were at $p < .05$ in the equation and beta coefficient value produced by multiple hierarchical regression analysis (MHRA) (Cooper & Schindler, 2001; Hair et al., 1998). The regression analysis assumed the data were linear, homoscedastic, independence of error, normal, absence of outliers and

multicollinearity. In assumption of linearity, normality and homoscedasticity, each EO in relation to performance measure showed the point randomly distributed about the horizontal straight line in scatterplot and P-P plot. No serious deviations from those assumptions were detected. The independence of error was used in detecting autocorrelation of the residuals. The assumption was that the error term should not correlate. The Durbin Watson (DW) analysis for dependent variable in this study was 1.8 within range of 1.5 to 2.7 suggesting the data is free from serious error.   In detecting and removing influential cases and outliers, standardized residuals (ZRESID) and Cook's distance (COOK D) were produced according to SPSS statistical data analysis procedure (Norusis, 1993). In the final step of MHRA, 119 samples were useable after deletion of outliers with residuals of COOK D value more than .02030.   Independent and moderator were first standardized to avoid high multicollinearity according to Cohen et al (2003). The result of multi-collinearity indicated that the values of tolerance and variance inflation factor (VIF) fall within acceptable range (tolerance 0.30 to 0.93 and VIF 1.10 to 3.30). Interaction of moderators was not determined solely on beta coefficient but through post hoc probing where split sample plotted on multiple line graphs were used to ascertain the acceptance or rejection of the hypothesis (Howell, Dorfman & Kerr, 1986; Sharma et al., 1981). Interaction post-hoc probing was operationalized as suggested by Aiken and West (1991) and Cohen et al (2003) to confirm the position of curve's simple slope of each split moderators.

4. Data analysis and Findings

There were 610 questionnaires sent through mail to firms in Perlis, Kedah and Penang and 232 returned but only 210 were usable. The response rate is 38%. Eleven firms returned incomplete questionnaires and eleven firms have moved from registered addresses. The non-response bias test used independent sample t test to detect any significant different between early and late responses. The test showed negligible significant differences between the early and the late responses. The unit of analysis was firms represented by the owner and senior managers as respondent. Respondent's level of education was represented by 2.3% in primary, 37.7% secondary, 36% diploma, 18.8% first degree, 5% masters degree, and .2% PhD. Respondents' gender were 61.1% male and 38.9% female. The age profile was 1.7% below 20 years old, 38.7% between 20 to 29 years old, 30.8% between 30 to 39 years old, 21.2% between 40 to 49 years old, 6% between 50 to 60 years old and 1.7% more than 60 years old.   Firm profile was described in industry categories represented by 55.9% in manufacturing, 24.2% in services, and 19.9% in mixed category. Business form was represented by 37.9 % sole proprietorship, 19.3% partnership, 40.4% private limited companies, and 2.5% limited companies. Number of employees was 88.2% of firms with less than 30 employees, 6.2% between 30 to 59 employees, 1.2% between 60 to 99 employees, 2.5% between 100 to 149 employees and 1.8% were firms with 150 and more employees.   Factor analysis and reliability were used to ascertain the goodness of measures of firm's entrepreneurial orientation dimensions, perceived environmental munificence and performance in the study. Principal component analysis with promax rotation and Kaiser Normalization is used. Anti-image measure of sampling adequacy (MSA) and communalities among all item selected are more than .50 with eigenvalue more than 1 and the total variance explained the loaded factors more than 50%. Factor loading in component is not less than .40 for 200 sample or cases (Hair et al., 1998).

As shown in Table 1, initially there were 18 items used to measure three EO dimensions, where 3 items were recoded. Twelve items were retained with MSA anti-image value above .50 and 6 items were exclude to increased the Kaiser-Meyer-Olkin measures of sampling adequacy (KMO) to .65 with chi-square for Bartlett's test of sphericity of 249.71 at 36 degree of freedom significant at .00. Three factors were extracted with eigenvalue of more than 1 and explained by 56.5% of the variance. Summated significant factor loadings for each dimension showed reliability of more than .50.

<<Insert Table 1>>

There were 22 items used to measure the dimensions of perceived environment. Twenty-one items were retained after one of them failed to achieve more than .50 anti-images MSA. These 9 items were loaded in two factors of human capital munificence, and information technology munificence. The KMO was .80 with chi-square of Bartlett's test of sphericity 678.89, degree of freedom 120 significant at .00. The variance was explained by 64.6% with extracted factors eigenvalue of more than 1. All three environmental condition dimensions showed reliability of more than .80 (Refer to Table 2).

<<Insert Table 2>>

Firm performance was represented by objective performance computed into return on sales (ROS), return on assets (ROA), and return on investment (ROI). These indexes were derived from calculation as follows: ROS = Net profit/Total sales; ROA = Net Profit/Total Assets; and ROI = Net Profit/Total Capital Invested (Higgins, 1989) (Refer to Table 3).

<<Insert Table 3>>

The correlation analysis elaborated mean, standard deviation, reliabilities and relationship between variables in the

study. Pearson correlation was used to examine the correlation coefficient among the variables. The lowest significant level shown was at $p < .05$. Proactiveness in entrepreneurial orientation dimension showed significant relation to overall firm performance at $p < .05$. Environmental munificence showed significant relation to performance and entrepreneurial orientation measures at $p < .01$ (Refer to Table 4).

<<Insert Table 4>>

Four-step analysis was observed in MHRA, first step seen significant equation of control variables model in explaining performance at 5% of the variance showed by adjusted R^2. Second step detected significant equation of main effect EO variables model in determining performance at 10% of the variance in adjusted R^2. Third step scanned significant moderator's model at 19% of the variance showed in adjusted R^2. And fourth step determined significant effect of interactions of moderators on each EO-performance relations at 52% of the variance showed in adjusted R^2 (Refer to Table 5).

Service and manufacturing industry showed significant beta coefficient at $p < .01$ in model 1, the main effect of innovativeness and risk taking showed significant beta coefficient at $p < .01$, and .05 respectively, both moderators showed beta coefficient significant at $p < .01$, and interaction effect of both moderators on proactiveness-performance relation showed significant beta coefficient at $p < .0$. Curvilinear effect of risk taking-performance relation was ascertained when curve estimation analysis showed highest R^2 explained by 16% of the variance in cubic equation (Refer to Table 5).

<<Insert Table 5>>

To conduct post-hoc analysis on significant interaction terms of IT munificence and human capital on relationship proactiveness and objective performance. The impact of human capital and information technology munificence on proactiveness-performance relationship was positive, the graph in figure 1 and 2 proved that in high human capital and IT munificence environment, proactiveness was more related to higher performance (Refer to Figure 1 and 2).

<<Insert Figure 1>>

<<Insert Figure 2>>

5. Discussion and Conclusion

This study found that autonomy and innovativeness were related significantly and positively with performance. Moderating impact showed significant interaction effect of human capital and information technology munificence on proactiveness-performance relationship. The finding strongly supported the resource-based view when the main effect of EO and moderating effect of environment showed significant change in the relationship. Innovativeness and risk taking direct impact on performance supported studies in EO-performance relationship (e.g., Covin & Slevin, 1989; Begley & Boyd, 1987; Kresier et al., 2002; Lumpkin & Dess, 1996). Innovativeness was positively related to performance strengthened previous studies that firms employing innovative behavior ensure higher firm performance. Similarly, risk taking that showed negative relation to performance was actually possessing "U"-shaped curvilinear relationship suggesting moderate level risk takers were outperformed by firms risk taking level. Moderating impact of human capital and information technology munificence on EO-performance relationship were crucial for proactive firm in achieving superior performance. The finding supported Kreiser et al. (2002) and redefined Brown and Kirchoff (1997) and De Koning and Brown (2001) that environmental munificence is conducive to EO or part of EO in predicting higher performance. The study reconfirms that independent effect of each EO dimension on performance contributes more in-depth knowledge in the differential relationship of innovativeness, proactiveness and risk taking with objective performance. Thus, antecedents and mediator variables of each EO dimension is worth to be investigated further. Moderating effect is also crucial in neutralizing or enhancing independent effect of each EO dimension in predicting performance. Thus, more possible internal and external environmental factors shall be included into entrepreneurship studies. Finally, each EO dimension contributes independently in explaining the performance, innovativeness positively related to performance but risk taking showed curvilinear relationship. Environmental munificence promotes proactiveness as the best predictor of performance in Malaysian SMEs.

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Table 1. Summary of Factor Analysis and Reliability of Firm EO

Items	Factor loading			
1. *Autonomous Behavior*	1	2	3	4
a. Our firm involves workers in implementing innovation even by ignoring procedures	**.74**	-.12	.14	.08
b. Our firm allows bypassing personnel procedures to get workers committed in implementing new ideas	**.72**	-.07	.16	.04
c. Our firm encourages worker to make decision in innovation.	**.61**	.23	-.13	.19
2. *Innovativeness*				
a. Our firm emphasizes on utilizing new technology	-.01	**.71**	.08	.06
b. Our firm encourages new idea from any workers regardless of his or her status in the firm	-.01	**.70**	-.00	.14
c. Our firm emphasizes on research and development	.05	**.67**	.38	-.08
3. *Proactiveness*				
a. We initiate actions to which competitors then respond in using new technology	-.04	.15	**.75**	.28
b. We are the first to introduce new product or service	.19	.02	**.74**	.08
c. We always respond to unrelated opportunities	.38	.25	**.43**	-.15
4. *Risk Taking*				
a. We practice "wait and see" position to minimize risk ®	.18	-.09	.11	**.78**
b. Our firm explore bravely and open minded to achieve goal	.37	.38	-.03	**.61**
c. We always invest in unexplored technologies	-.15	.20	.41	**.59**
Eigenvalue	2.91	1.63	1.17	1.08
Percentage of Variance	24.25	13.56	9.71	9.03
Cumulative % of Variance	24.25	37.81	47.52	56.54

Table 2. Summary of Factor Analysis of Perceived Environment

Items	Factor Loading					
1. Environ. Munificence (Human Capital)	1	2	3	4	5	6
a. Expertise in core business	**.76**	.08	.07	.23	-.06	.18
b. Business opportunities	**.72**	.14	-.01	.09	.11	.00
c. Local skilled workers	**.69**	.20	.05	.09	.07	.01
d. Material supplies	**.68**	.21	.08	-.23	.16	.07
e. Managerial talent	**.65**	.19	.21	.19	.02	.08
f. In-house training	**.62**	-.15	.02	.11	.02	.42
g. Capital availability	**.56**	.25	-.01	.18	-.05	-.17
2. Environ. Hostility (Competitiveness)						
a. Competition in product quality	.18	**.82**	.04	-.02	.09	.10
b. Competition in product uniqueness	.26	**.80**	-.05	-.04	.12	.11
c. Tough price competition	.07	**.68**	.11	.13	-.05	.18
d. Dwindling market for product/service	.26	**.62**	.16	.13	.24	-.02
3. Environ. Dynamism (Turbulence)						
a. Demand was unpredictable	-.01	.05	**.93**	.04	.00	.05
b. Customers' taste was unpredictable	.09	.02	**.89**	-.06	.08	-.03
c. Actions of competitors was unpredictable	.21	.17	**.62**	-.04	.06	.32
4. Environ. Munificence (Information Technology (IT)						
a. Availability of IT expertise	.18	-.03	-.05	**.89**	.08	.12
b. Availability of IT equipments	.27	.21	.01	**.85**	.07	-.05
5. Environ. Hostility (Restrictiveness)						
a. Scarce supply of material	-.04	.12	.14	-.05	**.79**	.15
b. Scarce supply of labor	.18	.18	.04	-.03	**.75**	.11
c. Government interference	.03	-.02	-.05	.23	**.61**	-.11
6. Environ. Dynamism (Marketing)						
a. The rate of obsolescence is very high	.01	.18	.06	.13	.14	**.79**
b. Our firm must change its marketing practices frequently	.15	.16	.12	-.08	-.02	**.79**
Eigenvalue	5.33	2.26	1.79	1.53	1.37	1.28
Percentage of Variance	25.40	10.75	8.52	7.31	6.51	6.11
Cumulative % of Variance	25.40	36.15	44.67	51.97	58.49	64.60

Table 3. Factor Analysis of Firm Performance

Items	Component matrix		
Objective Performance			
1. Return on sales (ROS)	**.89**		
2. Return on investment (ROI)	**.86**		
3. Return on assets (ROA)	**.60**		
Eigenvalue	1.89		
Percentage of Variance	63.08		
Kaiser-Meyer-Olkin Measure of Sampling adequacy		.57	
Bartlett's Test of Sphericity	Approx. Chi-Square	157.0	
	Df	3	
	Sig.	.000	

Table 4. Intercorrelation Among Variables in The Study

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Control															
1. Proprietorship[a]															
2. Partnership[b]	-.37**														
3. Private Limited Co.[c]	-.65**	-.37**													
4. Size (Small)[d]	.19**	.10	-.23**												
Dependent															
5. Return on Sales	.05	-.09	.04	.01											
6. Return on Assets	-.10	.07	.02	-.02	.19**										
7. Return on Capital	.14*	-.10	-.13	-.13	.22**	.25**									
Independent (EO)															
8. Autonomy	.13	-.14*	-.02	-.01	-.13	-.02	.05								
9. Innovativeness	.09	-.09	-.01	-.01	-.11	.02	.01	.07							
10. Proactiveness	.07	-.01	-.03	-.01	-.04	-.05	.05	.27**	.33**						
11. Risk Taking	.11	-.09	-.02	.00	-.01	.12	.06	.27**	.27**	.36**					
Moderators (PE)	-.03	.11	.06	.06	.11	.00	.04	.01		-.04					
13. Market Dyna	.09	-.01	-.06	.05	-.06	.08	-.06	.08	.21**	.25**	.30**	-.38**			
14. Competition	.10	.00	-.07	-.10	-.08	.08	.14*	.19**	.21*	.21**	.24*	-.11	.31**		
15. Restrictivene	-.12	-.04	.12	-.14*	.06	.03	.06	.03	.01	.12	.08	.07	.17*	.27**	
16. Munificence	.18**	-.08	-.10	-.06	.04	-.10	-.00	.21**	.27*	.21**	.33*	-.07	.20*	.47**	.19**

[a]dummy code (1 = proprietorship, 0 = partnership, 0 = private limited co., 0 = public limited co.). [b] dummy code (1 = partnership, 0 = proprietorship, 0 = private limited co., 0 = public limited co.). [c] dummy code (1 = private limited co., 0 = proprietorship, 0 = partnership. 0 = public limited co.). [d]dummy code (1 = 50 employees and less, 0 = more than 50 employees). EO = entrepreneurial orientation. PE = perceived environment. *p < .05. **p < .01.

Table 5. Hierarchical Multiple Regression for Objective Performance as Dependent Variable

| Variables	Step 1	Step 2	Step 3	Step 4
Control variables				
Service	-0.37**	-0.47**	-0.48**	-0.58**
Manufacturing	-0.36**	-0.43**	-0.53**	-0.65**
Firm Size	-0.11	-0.14	-0.16	-0.19**
Independent variables (Main effect)				
Autonomy		0.03	-0.04	-0.22*
Innovativeness		0.23**	0.29**	0.46**
Proactiveness		0.10	0.12	0.08
Risk Taking		-0.21*	-0.10	0.03
Moderator variables				
Turbulence			-0.06	-0.01
Marketing dynamism			0.02	0.05
Competitiveness			0.01	0.05
Restrictiveness			0.23**	0.33**
Human capital munificence			-0.12	-0.27**
Information technology munificence			-0.30**	-0.52**
Interactions				
Turbulence				
• Autonomy				0.05
• Innovativeness				-0.04
• Proactiveness				-0.08
• Risk taking				-0.24**
Marketing dynamism				
• Autonomy				-0.05
• Innovativeness				0.05
• Proactiveness				-0.31**
• Risk taking				0.42**
Competitiveness				
• Autonomy				0.26**
• Innovativeness				0.08
• Proactiveness				-0.03
• Risk taking				-0.16
Restrictiveness				
• Autonomy				-0.18
• Innovativeness				-0.17
• Proactiveness				0.70**
• Risk taking				-0.35**
Human capital munificence				
• Autonomy				-0.02
• Innovativeness				0.17
• Proactiveness				0.04
• Risk taking				-0.16
Information technology munificence				
• Autonomy				0.09
• Innovativeness				-0.22*
• Proactiveness				0.15
• Risk taking				0.19*
R^2	0.07	0.15	0.28	0.66
Adjusted R^2	0.05	0.10	0.19	0.52
Change in R^2	0.07	0.08	0.13	0.38
F-value	3.22*	2.83*	3.31**	4.26**

*$p < .05$. **$p < .01$.
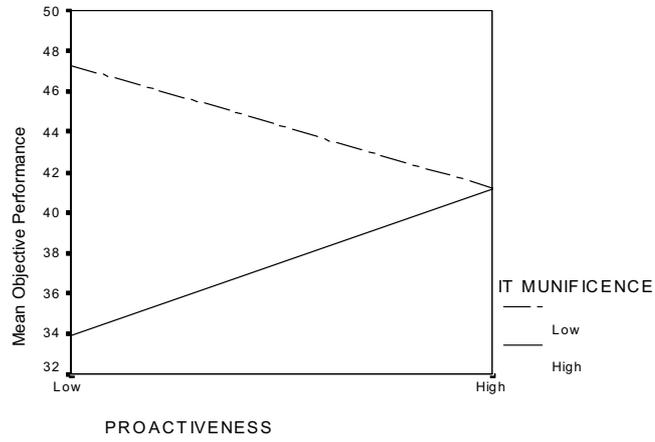
Figure 1. Interaction effect of information technology environmental munificence
on firm's proactiveness and objective performance relation
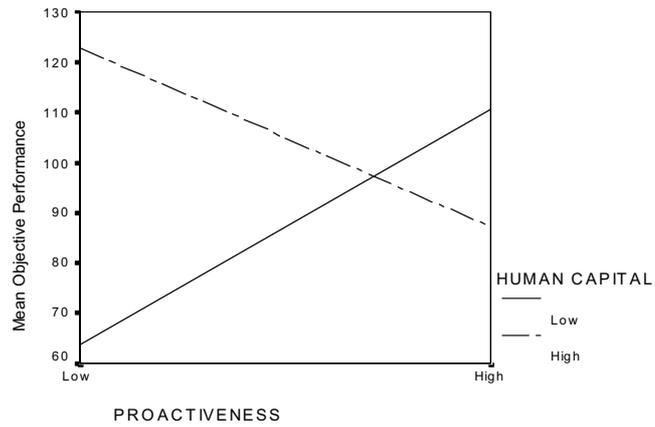
Figure 2. Interaction effect of human capital environmental munificence
on firm's proactiveness and objective performance relation

Macroeconomic Situations and Policy Adjustments in China

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Abstract

China has achieved wholly rapid growth, with economic reform and opening-up, since 1978. But the macro-economy is instable and showing prosperity and inflation, and Recession and deflation repeatedly with many times. Excessive fluctuations in the economy are due to macroeconomic policies' amendments and adjustments, too loose or tight. Economic growth speeds up with macroeconomic fluctuations slowing down in recent years. Improvements in macroeconomic policies have played an important role. 2008 global financial turmoil, Because of the financial crisis in U.S., China's economy came to a standstill, and the relative policies were made with emergent adjustments. It is reasonable and essential that macroeconomic policy are amended and adjusted whether or not China's economy can overcome the crisis as soon as possible.

Keywords: Macro economy, Market-oriented reform, Macroeconomic policy's adjustments and amendments, Monetary policy

1. Introduction

There being two serious economic overheating and inflation, with the economic situation dropped sharply when tighter economic policies taken, the magnitude of economic fluctuations, up and down, is serious, in the first twenty-five years (1978-2002) since reform and opening-up. The first time, in 1987 and 1988, GDP growth rate rose to 11.6% and 11.3% in 1988 and 1989 the consumer price index (CPI) rose to 18.8% and 18%. After tighter economic policies were taken, the GDP growth rate in 1989 dropped to 4.1%, followed with a significant decline of 7.2% in 1991, CPI dropped to 3.1% declined by nearly 15%. The second time, from 1992 to 1994, GDP growth rate rose to 13% with CPI rose to 24.1%. With tighter economic policies were taken, the growth rate in 1999 dropped to 7.6%, representing a decrease of 6.6% in the peak year, and CPI , inflation turned into deflation , dropped to -1.4% in the same year(Figure 1).

Insert Figure 1 here

Fluctuations in investment in fixed assets and retail sales are greater, measured in the current prices. In the first time, growth rate in the fixed-asset investment rose to 38.8% and 25.4%, retail sales increased to 27.5% and 27.8%, then, respectively, fell to -7.2% and 8.9%, decreased by 38.6% and 18.9% than the previous year after the policy. In the second time, growth in the investment in fixed assets and retail sales rose to 61.8% and 29.8% after the policy in 1999, the rate, respectively, dropped to 5.1% and 6.8 %, by 56.7% and 23% compared with the peak value just a few years ago.

2. Fluctuations in Economy with Improper Monetary Polices' Adjustments

Excessive fluctuations in macro economy are mainly due to the instability in macroeconomic policies, improper monetary policy, too loose or too tight. From 1984 to 1987, monetary policies were adjusted loosely, the growth rate of M2 increased to 24% -31%, promoting rapidly economic growth with inflation.

After tighter economic policies were taken in 1988 and 1990, growth rate in M2 dropped to 13%, with a significant decline in economic growth, the rapid lowering prices. In 1992 and 1993, a much more loose monetary policy was taken, M2 growth rate increased to 31% and 37%, ultra-and-high speed in economic growth, leading to more serious inflation. From 1998 to 2000, M2 growth rate reduced to 12%, resulted in the excessive decline in the economy, and inflation turned into deflation by monetary policies tighten (Figure 2).

Insert Figure 2 here

Administrative policies were taken in order to control over prices and investment. From 1985 to 1988, the period of

rising prices and increasing investments, the State Council issued a direction on local authorities and asked them to take administrative measures to control prices and compressing the scale of investment. Macroeconomic management increased administrative policies, with strict examination and approval of investment to compress the scale with strict credit control policies in September 1988. Fixed-asset investment growth rate in 1989 dropped to -7.2%, CPI dropped to 3.1% percent, lower than the 14.9% over the previous year, retail sales dropped to 2.5%, GDP growth rate dropped to 3.1%. Strong administrative rules and tighter monetary policies, resulted in hard landing for the economy, rapid economic growth slipped to the bottom, from a macroeconomic overheating over a short period into the cold.

In 1993, when the CPC Central Committee and State Council in June adopted a "Views over CPC Central Committee and State Council on the current economic situations and strengthening of macro economy" to exert strictly control upon the issuance of credit, liquidity or cessation of bank lending, corporate activities in financial markets, and strict control over investment in real estate, strengthen tax collection and management, clean up audit of investment projects under construction, and strictly control new projects, and so on. Activities in the financial markets were severely crack down, many investments in bonds, equity and trust were banned, many corporate loans were recovered ahead of schedule. The collapse of the real estate bubble appeared in the coastal areas, and a number of financial institutions went bankruptcy. Large number of bad debts existed in enterprises and financial institutions, after the period of have which had long-term adverse effects on the financial and economic operations and developments.

The second half of 1993, Macroeconomic administration began to introduce tighter policies, which were not only improvements, but also mistakes compared to 1988. Improvement lied in the fact that macroeconomic administration took steps to tighten the policies gradually in a few years, not the rapid tightening of monetary loans in place by taking the absorption of the lessons of a hard landing in 1988. From 1993 to 1997, M2 growth gradually slowed down from 37.3% to 25.3% from 24.1%, inflation rate fell to 8.3%, investment growth slowed from 61.8% percent to 14.8 %, GDP growth rate dropped steadily from 14% to 10%. Macro economy gradually lowered to achieve a soft landing. Error lied in the fact that macroeconomic administration continued to strengthen the crunch, and caused the excessive decline in the economy after the goal of soft landing achieved. In 1997, GDP growth and inflation rate down to 9.3% and 2.8%, investment growth rate to 8.8%.Macroeconomic indicators had dropped to the normal range or below normal levels. But the tighter policies still continued, especially tighten monetary loans. From 1997 to 1999, M2 growth fell from 19.6% to 14.7%, CPI dropped to -1.4%, growth rate in the investment and GDP dropped to 5.1% and 7.6% ,which were in a low level.

From 1998 to 2002, tighten macroeconomic continued and resulted in deflation and macro economy downwards, not to release vigilance against inflation. Monetary policy authorities did in accordance with the growth of money supply not exceeding 15%, CPI not exceeding the goal of zero to tighten monetary policy. In the five years, the majority of the months, growth rate of M2 and loan contracted to 15% or less, CPI was down to the negative (Figure 3). The risk of inflation was eliminated, but deflation appeared to bring about consumption and investment downwards, and unemployment was serious with social problems increased. Growth rate in retail sales feel to 7% and fixed-asset investment dropped to 5.1%. The registered urban unemployment rate was from 3.1% to 4%.

Insert Figure 3 here

3. Market-oriented reforms and Macroeconomic policies' adjustments

Since 1978, China's economy has entered a new period of market-oriented reforms and economic quickly developments. Economic growth has been accelerating, because the old central-plan mechanical economy was breakdown, which impulse the decentralization and reform of enterprises to expand their powers to stimulate the local economies active and business vital. The early stage, the first ten years, of reforms and opening-up, macroeconomic administration exerted a relatively flexible monetary policy wholly, implementing adequate monetary support market-oriented reforms and rapid economic developments. Local governments and enterprises had enthusiasm to investment. Income of urban and rural residents, especially the rural residents were on the increase rapidly with the emergence of consumption boom in housing and appliances. Vitality of local governments and the competitiveness of enterprises, lack of restraint mechanisms, led to excessive expansion of investment scale. The market-oriented reform, especially the price-settle mechanism, brook through the price-control system. In 1988, a striking rise in the prices of consumption goods. This not only released money supply, but also contained reforms in the price-settle mechanism, which exerting, on the one hand, the formation of the negative impact of inflation, on the other hand, having market-oriented reforms positively. In the fourth quarter of 1988, macroeconomic administrations adopted tighter monetary policy to decelerate quick investments and inflation trend, stabilizing the macroeconomic situation, at the same time, making stagnation and retrogression of market-oriented reforms.

Market economic system was decided to establish to achieve rapid economic growth, which means market-oriented reforms were entering a new stage in 1992. Policy of release of substantial monetary supply was striking. Local economies and cooperates rapidly expanded business investments. Economy showed rapid increases in the consumption of residents, a new round of investment on the increase and inflation. The second half of 1993, macroeconomic

administration began to tighten economic policies, the more relative tight fiscal policy and monetary policy. In 1994, macroeconomic administration continued to advance tax, financial system, investment mechanism and enterprise reforms, at the same time, promoting reforms in the fields of health care, education, social security, and housing. These reforms promoted macroeconomic management system to change from a planned economy to a market economy, learning from the mature market economies and macro-management mode, establishing the policy and governance structure of monetary and fiscal policy. The central bank, changed from People's Bank of China, was responsible for the formulation and implementation of monetary policy. Reforms in the tax system, instead of local financial system, increased the concentration of the central finance. The central bank used tools as deposit reserves, open market operations, and rediscount rates to exert monetary policies, reducing the scale of loans from the commercial banks lending controls and direction loans, and gradually pushed forward market-oriented reform of interest rates in order to make monetary policy play a central role in the conditions of market economy system. The duty of State Development Planning Commission changed from mainly the distribution of goods and approval of investment projects into responsibly formulating economic and social development plans and industrial and regional policies in the long term, with the coordination of ministry of finance with the central Bank.

In 1995, macroeconomic administration decided to execute the moderately tight fiscal policy and monetary policy, which not only for short-term policy to control the inflation, but also the impulse for investment in institutional and economic reforms in the medium and long terms. The moderately tight macroeconomic policies, purpose to take urgent rules for economic situations were proposed for the first time, which were repeated in the Directory Plan for long-term development of the fifteen years (1996-2010) by the CPC Central Committee. Macroeconomic administration and the academic community generally believed that China's economy was in the transitory stage of market-oriented reforms, lack of an effective mechanism of risk for investment and financial activities, have not yet established, financing There being soft constraints in The financial relationship, which might be prone to impulse aimless investment and economic overheating, between state-owned enterprises and state-owned banks. It was difficult to solve, as a systematic and mechanic problem, in the short term. So, it was proper to execute the moderately tight Macroeconomic policies in the long term. The tight macroeconomic policies included tighter fiscal policy and tighter monetary policy. But, in the macroeconomic management practice, fiscal policy actually was not tight by expanding policies such as issuing governments' bonds. So, the tighter macroeconomic policies always mean tighter monetary policy, once mentioned in the development plan of the CPC Central Committee in the long-term which had a strong authority that was not doubted absolutely in the next fifteen years. Tighter monetary policy lasted over years. Reforms in depth, such as investment and financial system, enterprise mechanism, income distribution policy, labor markets, social security, health care, and so on, formed gradually risk constraints, which provided microeconomic foundation to execute the tighter monetary policy.

China's economy, achieved the soft landing goal in 1996, was affected by the financial crisis in Southeast Asia, in 1997, leading to the impact of declining exports and economic growth. It became obsolete to maintain the tighter monetary policy, which the main goal to control inflation. Nominally so-called solid monetary policy, actually was implementing more severe tightening. Growth rate of M2 was reduced from 20% to 19.6% lower 5.7%than the last year, then beneath 15% in the four years. Fiscal policy was taken by issuing government bonds, and the expansion of investment. From 1998 to 2002, Treasury issued 660 billion yuan of treasury bonds, including matching funds, totally 3.2 trillion yuan of investment scale, about 18.6% of total social investment. Expansive fiscal policy with the tighter monetary policy did not play a lead role in total investment, but increase the proportion of government investment, with a crowding-out effect of other investment. Growth rate in fixed-asset investment and consumption retails decreased obviously in current prices. Growth rate of investment was down to 8.8% lower by 6% over the previous year in 1997, then down to 5.1% in 1999. Growth rate of consumption retails in 1997 reduced to 10.2% in 1998 and 1999 down to 8.8%. CPI dropped to -0.8% in1998 and -1.4% in 1999, with a slight upwards in 2000 and 2001, and then dropped to -0.8% in 2002.The degree of tighter monetary policy was continuing to strengthen, enterprises' normal operations and developments faced with a serious shortage of funds, with a significant decrease of market demand and increasing business risk of losses and bankruptcy.

Market-oriented reforms started from the change from the system of incentives in profits into strengthen the constraints to overcome the soft constraints. State-owned enterprises, particularly, a few large enterprises got special policy supports. Private-owned enterprises were discarded, actually, with worse financial and operational business environments. In order to reduce over-burdened social issues, State-owned enterprises made a large number of employee layoffs. It was difficult to find new jobs for these unemployed who lacked subsidies and allowances, leading a hard life. Although reforms of State-owned enterprises aimed at establishing a medical care, retirement, unemployment and other social security systems, which placed emphasis on excessive social burdens, workers had to afforded their health care and retirement insurances at their own expense of high percent. Reforms, in education industrialization and commercialization of housing, increased significantly households' expenditure on their children's education and living burdens. But, majority of workers' incomes grew slowly, the slow growth of wages, Aggravating gap between income and expenditure led to many of the actual level of lives reduced. Income distribution changed from the early stage of

reform over national income decreasing and enterprises and personal income increasing into national income increasing and business and personal income falling. Risk of excessive economic and social pressures were assumed by businesses and individuals resulted in a sharp weakening of demand in business investment and consumption. Strengthened Effect of tighter monetary policy did slow down economic growth, deflation, rise unemployment, and increase hardships of the people. From 1998 to 2002, Macroeconomic indicators, On the whole, deteriorated. Average growth rate of GDP fell to 8.2%. The registered urban unemployment rate rose to 4%, and those unemployed not registered were even worse. Trouble-making events, made by groups of layoff, occurred in many places. Situations of low growth and high unemployment predicated that it was difficult to continue the tighter of monetary policy.

4. Rapid Economic Growth with Proper Monetary Policy

In 2003, Policy showed the apparent shift in macroeconomic policies from controlling over-investment and accelerating inflation to support economic growth rapidly. The growth rate of the currency loans increased substantially, from the performance of actual monetary implementation, although so-called the moderately tight monetary policy. Growth rate in M2 and loans increased by 19.6% and 21.1%, higher than the previous year, by 2.7% and 5.3%, respectively, in 2003. From 2003 to 2007, the average of growth rate in M2 and loans by16.9% and 16%, on the average, higher by 1.6% and 1.2% than the period from 1998 to 2002. Released monetary policy supported investment, consumption, exports and overall GDP growth rate on the increase trend. Consumption retails, fixed-asset investment, exports increased by average of 13.2%, 25.8% and 30.3% in current prices, higher than the previous five years by 4.2%, 14%, and 17.6%, respectively, GDP growth rate 10.8% on average, higher than the previous five years by 2.6%. Consumer price index changed from the decline trend into a moderate rise in the range of 1% -3%. Residents' situations improved in employment, income, consumption. The registered urban unemployment rate declined from 4.3% in 2004 to 4% in 2007. From 2003 to 2007, five years, disposable income of urban residents and rural residents, increased, respectively, 9.8% and 6.8%, respectively, higher than the previous five years, 1.1% and 3%.Urban and rural consumption expenditure per capita grew by 8.1% and 7.9%, respectively, higher 0.2% and 4.9% than the previous five years (Table 1).

Insert Table 1 here

5. Scholars' Debates

Adjustments in macroeconomic policies and changes in economic operations invoked departments and the academic debates and arguments since 2003. Many people thought that main macroeconomic indicators raised too faster, macroeconomic situation of overheat was beyond the reasonable boundaries. Macroeconomic administration had issued its own warnings that economy had been its partial heat and changing from the partial path to the overheating trend. From 2003 to 2007, the GDP growth, on average, was 11%, up to 13% in 2007, substantially in excess of the average growth rate of three decades of reforms and opening-up, close to 1985 and 1993, which were periods of serious economic overheating and inflation. Growth rate in fixed asset investment was 25%, exceeded the average level in the first five years of more than 10%, and resulted in tighter supply of coal, electricity and oil and other goods, with investment goods prices rising. Export growth of 25% -35%, resulted in too large trade surplus and foreign currencies inflow , which lead to excessive money supply passively about 16% more than the strict control line of 15%,application of tightening monetary policy since 1998.

Experts of Development and Reform Commission believed that in 1998 five years after the implementation of tight monetary policy, economy, growth rate around 8%, did not appear overheated, but a appropriate rate of economic growth, although investment in some industries and enterprises showed with the aimless expansions. Some experts argued that excessive growth of investment in steel, cement and electrolytic aluminum, which were caused by exceeding demand and high profits lead to accelerating investment, aimless expansion and serious overcapacities would deduce huge wastes and serious depression since 2003. The central bank expressed that trend of continuing higher prices in iron and steel, coal, non-ferrous metals, chemical raw materials, and capital goods, would changed into a cost-push inflation trend, which indicating that excessive growth of monetary credit, resulting in an overheated situation and inevitable inflation in consequence.

Wide attentions, with criticisms, were paid on rapid growth in energy consumptions and environmental pollutions, since 2003. Low efficiency of energy use and emissions control, high-speed economic growth, with 1.3 billion people, emerged large-scale and rapid growth of energy consumption and emissions. In accordance with development plan in the long term established by Development and Reform Commission, under the mandatory conditions of the supply in energy resources and environmental constraints, it is more reasonable that the proper rate of sustainable economic growth in China was approximately 7%-8%. In recent years, many experts criticized that China's economic growth of more than 10% was at the cost of excessive consumption of energy resources and environmental pollutions. Development and Reform Commission repeatedly criticized that aimless expansion in some industries, with low efficiency of energy and resource and environmental protection level, resulted in excessive consumption of energy resources, environmental pollutions. Shortage of electricity and energy resources with higher prices indicated that the

growth rate of the economy exceeded a reasonable limit in recent years. Some scholars pointed out that China's production capacity of iron and steel drove up prices of imported iron ore, and the economy, overheating, was being a serious state, from the angle of continuing tensity of shortage of coal, electricity and oil.

But, some scholars believe that China's economy is not overheated since the monetary policy released in 2003.China's energy and raw material prices were rising, it is just reasonable adjustments for prices that were once too low in the past long run. Higher prices in energy and raw materials did not exert a clear impact on inflation with the cost-push trend. There being no inflation, consumer price index did not rise too high, since 2003.Growth rate in urban-rural income substantially higher than the fluctuations in consumer price index, and residents' real income and consumption increased remarkably. Economic growth rate in 2003 increased to 10%, demand and consumption of energy and raw materials accelerated. There has been tension in the supply of energy resources, energy and raw materials' prices going up accordingly. Since 2003, energy and raw materials' production and investment were growing in ultra-high-speed growth rate, structural contradictions, such as coal, electricity and oil shortages gradually eased. The capacity of energy, raw materials to support the economy were rapidly increasing. Fluctuations, up and down, in price indices for fuel and raw materials reflected the higher rate of economic growth under the conditions of shortage of raw materials, energy which were evolved in changes and improvements from the balance between supply and demand (Figure 4). Energy output, which was stimulated under the supply gap, grew rapidly by 14% since 2003, gradually slowed down to 7%, the state of balance between supply and demand in 2007. Capacity of producing coal and generating electricity grew by 15%, in the majority of months, from 2003 to 2007.Some departments, for example, iron and steel and non-ferrous metals grew at the rate over 20% (Figure 5, Figure 6).

Insert Figure 4 here

Insert Figure 5 here

Insert Figure 6 here

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Table 1. Key index of economic growth in1998-2002 and 2003-2007   %

Years	GDP	CPI	Consumption retails	Investment	Exports	M2	Loan	Unemployment rate	Urban average income	rural average income
1998	7.8	-0.8	6.8	13.9	0.5	14.8	15.5	3.1	5.8	4.3
1999	7.6	-1.4	6.8	5.1	6.1	14.7	12.3	3.1	9.3	3.8
2000	8.4	0.4	9.7	10.3	27.8	12.3	17.6	3.1	6.4	2.1
2001	8.3	0.7	10.1	13.1	6.8	17.6	12.9	3.6	8.5	4.2
2002	9.1	-0.8	11.8	16.9	22.4	16.9	15.8	4.0	13.4	4.8
2003	10.0	1.2	9.1	27.7	34.6	19.6	21.1	4.3	9.0	4.3
2004	10.1	3.9	13.3	26.6	35.4	14.9	14.4	4.2	7.7	6.8
2005	10.4	1.8	12.9	26.0	28.4	17.6	13.3	4.2	9.6	6.2
2006	10.7	1.5	13.7	23.9	27.2	15.7	15.1	4.1	10.4	7.4
2007	13.0	4.8	16.8	24.8	25.7	16.7	16.1	4.0	12.2	9.5
1998-2002	8.2	-0.4	9.0	11.8	12.7	15.3	14.8	3.4	8.7	3.8
2003-2007	10.8	2.6	13.2	25.8	30.3	16.9	16.0	4.2	9.8	6.8

Source: "China Statistical Yearbook 2008".
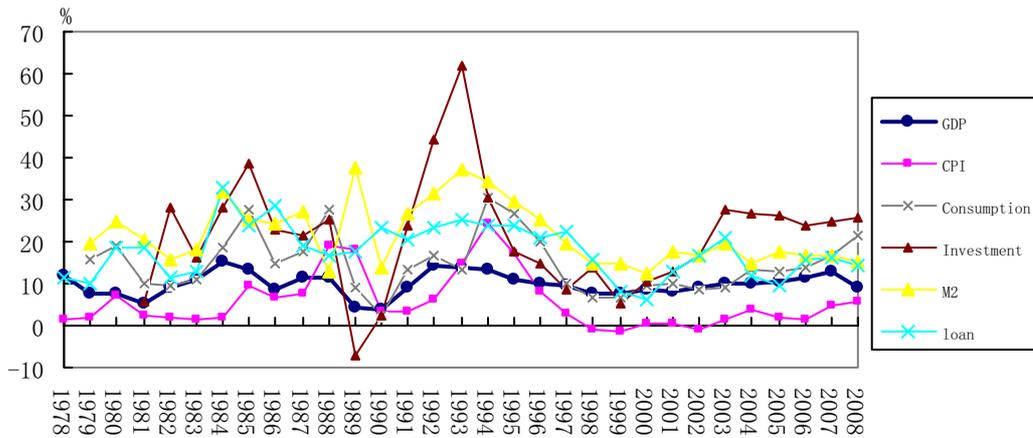
Figure 1. The main macroeconomic indicators (1978-2008)

Source: "China Statistical Yearbook 2008".
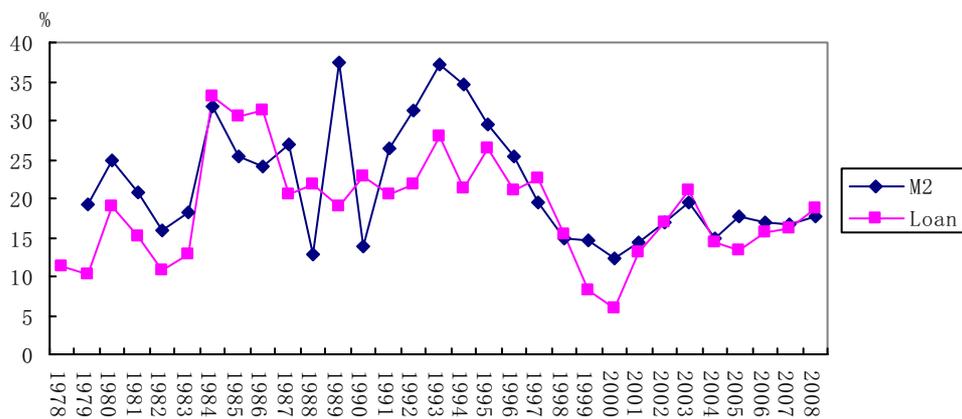
Figure 2. Growth rates of M2 and loans (1978-2008)

Source: "China Statistical Yearbook 2008".
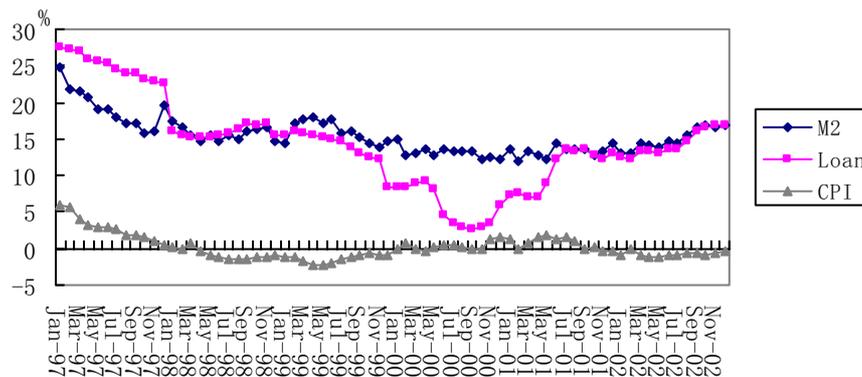
Figure 3. Monthly changes in loan and CPI (1997-2002)

Source: National Information Center for the macroeconomic database.
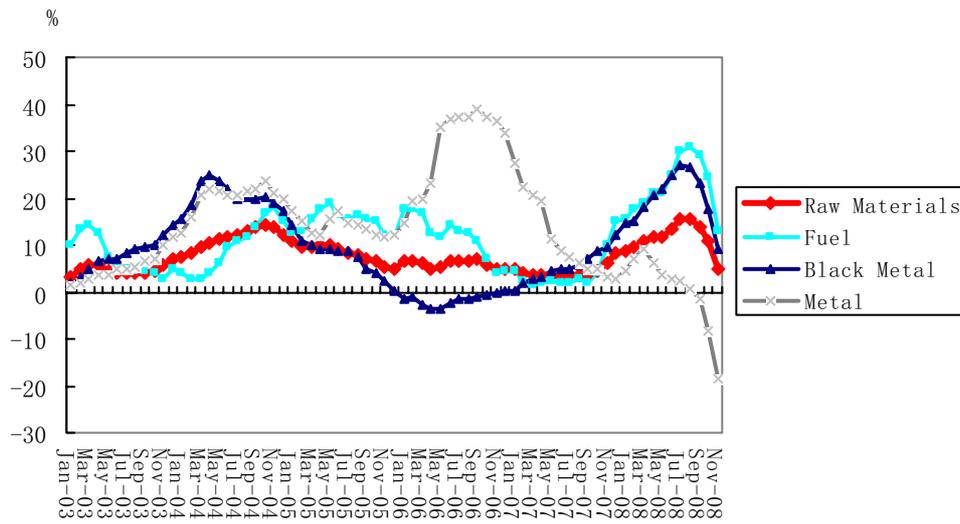
Figure 4. Monthly changes in fuel prices & raw materials (2003-2008)

Source: National Information Center for the macroeconomic database.
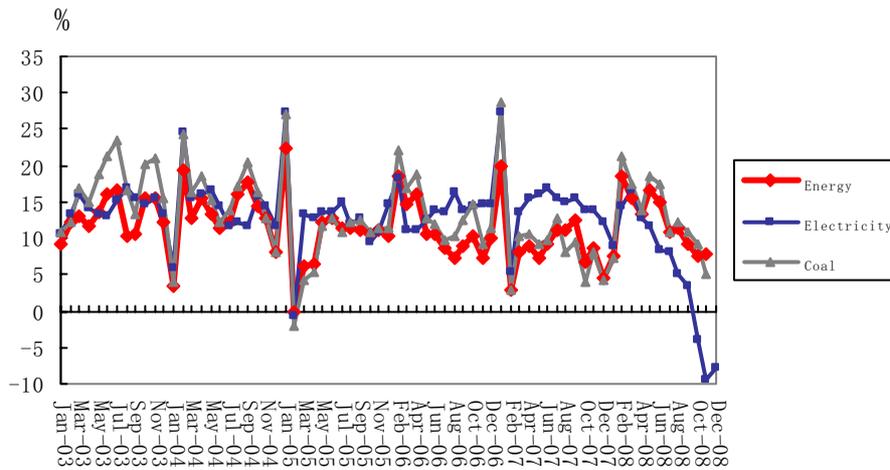
Figure 5. Monthly changes in energy production (2003-2008)

Source: National Information Center for the macroeconomic database.
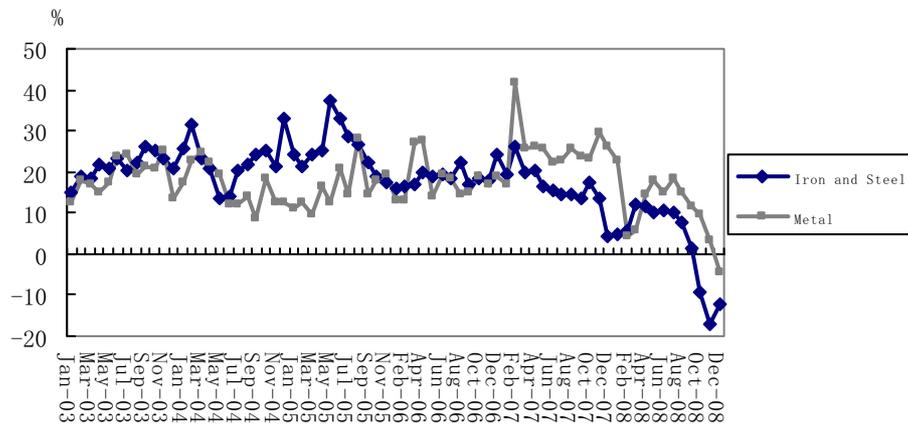
Figure 6. Monthly changes in iron and steel & metals production (2003-2008)

Source: National Information Center for the macroeconomic database.

An Investigation of Manufacturing Performance Improvement through Lean Production: A Study on Bangladeshi Garment Firms

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Abstract

The benefits of lean manufacturing are evident in factories across the world. With a view to achieve performance improvement both the developed and developing countries are practicing lean. In this study nine garment manufacturing companies were selected as sample. A field survey with a semi-structured questionnaire, interviews and site visits were conducted to get necessary lean information from the respondent. These companies were selected purposively to ensure the best possible scenario of lean practices in Bangladesh.

The focus of this study is to investigate the improvement of manufacturing performance through lean practice in the Bangladeshi garment industry. The findings indicate that the selected companies have adopted a wide variety of lean tools and techniques and gained many performance improvements. Findings also identified the business challenges that drive the companies to practice lean as well as the areas where changes have been made. It concludes with suggestions for further work.

Keywords: Lean production, Bangladesh, Ready made garments, Manufacturing performance, Improvement

1. Introduction

"Manufacturers are now a days facing intensive global competition. They are becoming increasingly aware of the importance of modern management philosophy in providing them with a competitive advantage in a free market system" (Yeung and Chan, 1999, p.756). As stated by Mannan and Ferdousi (2007, p.2) "Now the key to competing in the international market place is to simultaneously improve both quality and productivity on continual basis". In today's competitive and changing business world, lean production philosophy has brought changes in management practices to improve customer satisfaction as well as organizational effectiveness and efficiency (Karim, 2008). Firms are now more concerned about customer satisfaction because they have now more options than before. Customers are now demanding a wide variety of products at a lower cost but with fast delivery. They also expect more innovative products at a competitive price (SAP AG, 2005) as customers have more opportunities to choose from a variety of options.

The major purposes of the use of lean production are to increase productivity, improve product quality and manufacturing cycle time, reduce inventory, reduce lead time and eliminate manufacturing waste. To achieve these, the lean production philosophy uses several concepts such as one-piece flow, kaizen, cellular manufacturing, synchronous manufacturing, inventory management, pokayoke, standardized work, work place organization, and scrap reduction to reduce manufacturing waste (Russell and Taylor, 1999). In lean production systems attempts are made to eliminate waste through continuous improvement of processes of the entire value chain in the organization. Having nurtured a lean manufacturing mindset among the employees, it facilitates achievement of continuous product flow through physical rearrangement and control mechanisms. A study (Sohal, 1996, p.91) indicates that *"most western*

manufacturers have been aware of the need to improve their performance and competitiveness for nearly two decades". They were using lean production system for taking advantage of most of the above benefits. Another study (EPA, 2003) summarized the main reasons for adopting a lean system under three broad categories: reducing production resource requirements and costs, increasing customer responsiveness, and improving product quality. It concluded that all of these combine to boost company profits and competitiveness.

As stated by Papadopoulou and Ozbayrak, (2005) that this concept spread to Japanese factories after it was first implemented in the Toyota Motor Company. When another developed and developing countries are reaping several benefits from the practice of lean, in Bangladesh its adoption is very slow. Anecdotal evidence indicates that the few organizations that have adopted lean practices have experienced an overall improvement in corporate performance (Mamun and Afrin, 2001). While some work (Harun, 1990) has been done regarding the theoretical aspect of JIT; a little work has been done in the area of lean practices in the Bangladeshi enterprises.

In the face of fierce competition resulting from the rapid globalization of businesses in Bangladesh, some companies across the garment industry sector have been practicing lean production to remain globally competitive and create a strong market position. There is a lack of research evidence regarding the impact of lean practices on manufacturing performance improvement in Bangladeshi garment firms. Researchers are mostly silent on this very important area of production philosophy. The entire field of lean remains unexplored in Bangladesh. This research attempts to bridge this gap. Due to political turbulence, undeveloped economic infrastructure, high traffic problem, there is a strong belief that maintaining a strong supplier partnership is difficult. This requires a careful and systematic investigation. The present study deals with the emerging issues and investigates the lean practices in the Bangladeshi firms and their impact on manufacturing performance improvement.

2. Literature Review

"Businesses all over the world are now facing fierce competition because of liberalization of trade and globalization. Foreign competition has penetrated into almost all the industries, both in the production and service sectors. There prevails a view that organizations in Europe, Japan and the several developing countries are seizing the initiative in a dozen key technologies, including factory, automation, consumer electronics, microchips and aerospace. Many countries are emerging as strong competitors and challenges for those who have already been industrially developed" (Mannan and Ferdousi, 2007, p.4).

"Lean Production" was introduced by a book titled *The Machine That Changed The World* written by **Womack et al.,** (Piciacchia, 2003). *"The idea of lean thinking comprises complex cocktail of ideas including continuous improvements, flattened organization structures, team work, elimination of waste, efficient use of resources and cooperative supply chain management"* (Green, 2000, p.524). This is a Japanese concept applied in manufacturing firms. The Japanese firms (firms in other countries as well) have been using this concept to reduce the cost of any process (be it service or manufacturing) by removing waste. The basic elements of the concept include waste elimination, continuous one piece workflow (EPA, 2003). As stated by Kilpatrick (2003), lean makes an organization more responsive to market trends, deliver products and services faster and produces products and services less expensively than non-lean organization. As viewed by Womack and Jones (1994), firms in several industries in North America, Europe and Japan followed this path and doubled their performance through reduction of inventories, throughout times and errors.

According to Alukal and Manons (2002), a planned implementation of lean production system leads to improved quality, better cash flow, increased sales, better productivity, improved morale and higher profits. They further reported that companies earned greater benefits by implementing lean techniques in the office functions in non-manufacturing organizations too, such as banks, hospitals, restaurants etc. A study on a Novartis International AG - A Switzerland-based company (Society of Manufacturing Engineers, 2002) reviewed their production process and realized the need for some improvement. They introduced lean picking system for the movement of the goods from the warehouse to the packing lines. This redesigned material supply is a kind of Kanban system. Through this picking system the company reduced its waste to a good extent. By using this system they were benefited in terms of waste elimination from the redesigned material supply process. The study was anticipated that this lean picking system would facilitate faster picking lines as well as would shorter the run times.

There are studies have been undertaken bearing upon the relationship between lean practices and manufacturing performance of the firms (Papadopoulo and Ozbayrak, 2005; Bonavia, 2006; Simpson et al., 1998, EPA, 2003; Oliver et al., 1993) and also have showed the improvement in manufacturing through lean practice. Chihuahua (Society of Manufacturing Engineers, 2007), the producer of world class power and signal distribution system of Mexico, reviewed its existing manufacturing system and identified the need for improvements. The company introduced lean with a view to improve the current performance. It is documented from the study that implementation of lean brought 34% reduction in inventory over a 12 months period and 93.5% uptime. The study showed that the keys to achieving quality in manufacturing include the flexibility of the production system, and involvement and commitment of employees**.**

As stated by Narain and Yadav (2004*), "Since the advent of economic liberalization in the early nineties the manufacturing scene in India has witnessed major upheavals. Reeling under the heavy burden of stiff international competition, Indian manufacturers throughout the country has now begun to place grater reliance on their own strengths to harness the latest technologies available, and to pursue the best management practices followed elsewhere in the world in an attempt to become lean and agile".* The several sectors of India were and are still facing relentless pressure on prices as a result of heightened competition. In this crisis situation Indian firms have achieved positive results through lean manufacturing. In India, three case studies indicate that lean manufacturing practices helped the companies (in the engineering products industry) achieve improvements to a significant extent, in such areas as turnover (36%-50%), production setup time (74%), machine down time (60%-100%), production space (17%-45%), delivery against schedule (21%), product rejection by customers (50%), productivity awareness (increased dramatically), quality awareness increased steadily, scrap reduction (75%), increase of workforce flexibility (57%-100%), and staff motivation improved significantly (1000-Venture, 2007). Another case study was conducted by Simpson et al. (1998) on a Malaysian automobile company, Proton, to develop an understanding of a Malaysian version of JIT. Proton is the largest and modern automobile manufacturer of South East Asia. The company use robots and automation in production processes. It introduced *Kanban* - various types of containers for holding components or movement of components. It also introduced several supporting mechanisms to complement the use of JIT system and organized training program for the employees. All these reduced work in progress from three months to one month of supply, 50% of space required and brought improvement in inventory turns from 15 to 31. Although several constraints had been faced, the study showed the success of the company with many benefits.

The pressure placed on firms in the garment industry from international competition and dynamic changes in the retail sector have been enormous. *"The increase in competition has led to an increased focus on customer satisfaction as a survival of the company in the long run"* (Kapuge and Smith, 2007, p.304). In today's competitive business world, firms are fighting against each other just to ensure their survival. In this highly competitive business market, the garment industry is also searching for ways and techniques to cut cost and improve performance. When other industries are facing high pressure from competitors, the garment industry is also facing challenges such as- price, delivery time and service offered etc. This industry has opportunities to improve, but requires some changes. Under the highly competitive environment, the garment industry has numerous opportunities for improvement using lean principles (Mercado, 2007).

Through the implementation of lean the garment sector can reduce costs, as well as increase customer responsiveness through reducing several types of waste from the production process. Customers demand quality products and on-time delivery. Lean practices can fulfill these requirements by reducing lead-time as well as manufacturing cycle time. Now, many countries have started to practice lean tools in the garment industry and observed tremendous improvement (Mazany, 1995; Bruce et.al; 2004). This practice has improved their productivity, quality and lead-time and also made their customer more responsive. In addition to this lean production involves, motivates and develop employee skills through education and multi-skilling program (Mazany, 1995).

3. Objectives and Research Methods

The general objective of the paper is to examine the manufacturing performance improvement through lean production practices in the selected Bangladeshi firms. The specific objectives include:

i.   Examining the manufacturing performance improvement experienced by the selected garment firms to implement lean.

ii.   Identifying the business challenges faced by the selected garment firms to practice lean.

iii. Identifying the areas where changes have been made to implement lean in the selected Bangladeshi firms.

This paper is primarily based on the data collected from the field survey in nine garment companies (out of 45 companies) from EPZ (Export Processing Zone) in Bangladesh, using a semi-structured questionnaire. Interviews with 'lean implementers' and plant observation was also conducted by the researcher. These nine companies were purposively selected because of the limited use of lean as well as to ensure the best possible scenario of lean implementation.

4. Result and Findings

A total of nine organizations (garment firms) were selected for the purpose of this study. An analysis of the organizational issues helps to appreciate the nature of the organizations. It appears that legal status of the companies has little influence over legal practices. Result showed that nearly half of the companies are international joint ventures and one third of them were public limited and the rest were private limited companies (Table A1). The companies are of the view that the registration of a company under the government is a prerequisite for obtaining legal entity.

The study results revealed (Table A2) that some companies initiated lean implementation from the beginning of the

commencement of production in their plants, while others started lean implementation after a few years from the year of establishment. However, the findings suggest that since all companies have been successful in reducing cost and improving productivity, it is not the length of time of practices, but rather the effectiveness of implementation that determines the success of lean implementation. Team work is one of the core concepts of lean production. Findings revealed that 56% of the companies had team based structures and the remaining companies had functional structures. This is in sharp contrast with the general notion that a team structure is essential for lean implementation, or the successful implementation of any kind of change initiative. Although it is revealed in the sample that variation among the firms with different organizational structure is not an obstacle in lean implementation, at the same time it is indicated that top management of the companies are not aware of the fact that a functional structure restricts flexibility.

Table A3 indicate that the majority of the companies were dependent on a large supplier base which is in contrast to the lean practice fundamentals. Although all of the companies intend to maintain long-term relationships with suppliers (Table A4), maintaining long and stable relationships with such a large supplier base is, in reality, difficult.

The findings indicated the sample companies had adopted a large variety of lean tools and techniques such as Kanban (66%), JIT (100%), 5S (44%), Pull production (100%), TPM (89%), Kaizen (78%) etc (Table A5). To practice the above mentioned lean tools the selected garment firms experienced several improvements in manufacturing performance.

4.1 Manufacturing Performance Improvement through Lean Practice

4.1.1 Savings Resulting from Lean Practices

It is a usual expectation that lean practices would result in considerable savings. An attempt was made to elicit information regarding the amount of savings that the companies could achieve during the one year. The respondents in all companies did not agree to provide actual data regarding amount of savings. However, an analysis of the views of the respondents suggests that 44% of the sample companies made significant savings over 12 months period through the reduction of labor costs in the production process (Table A6). As reported by the senior managers, the companies could reduce labor costs through reduction of the number of workers. The workers handled a larger variety of works and this resulted in good savings. Over a long period of time the accumulated savings would be very significant.

4.1.2 Reduction in Production Costs

An attempt was made to get the opinion of the plant managers regarding the reduction of production costs due to implementation of lean system. The respondents provided data concerning the unit costs of production before lean and after lean. The results are presented in Table A12.

The data indicates that the maximum per unit cost reduction was $2.00 and minimum was $0.03. For five companies, the improvement in cost was fairly substantial while for others the improvement was negligible (3.44% to14.28%). Whatever cost reduction occurred, it was achieved through an increase in the number of units of products with the same workers as well as reduction in the inventory compared with the pre-lean period.

4.1.3 Total Productivity Improvement

In response to a question - "What is the average productivity increase in the company after implementation of lean?"- the sample companies indicated that their productivity improved by a maximum of 60% and minimum of 10%. The majority (67%) of the companies had 10% to 20% productivity improvement whereas the remaining had 40% to 60% improvement (Table A7).

No actual data on productivity could be obtained from the companies, as the companies consider these data strictly confidential. Thus, no generalization is possible about productivity based on the opinion of the respondents.

4.1.4 Lead Time

Data were collected on the total amount of time taken to complete an order from the procurement of raw materials to final manufacturing of a product. The time taken is expressed in terms of the average number of days, known as lead time. The shorter the lead time, the more gain for a company and better the satisfaction of customers. The collected data are tabulated in Table A13.

An analysis of the tabulated data shows that the lead time in the companies ranged from 16 days to 120 days before implementation of the lean production system, while the corresponding lead time reduced within the range of 13 days to 105 days—the minimum reduction being three days and maximum 30 days. The data also indicate that three companies saved 8% -12.5% , two companies saved 18%-25% and four companies saved from 33%-50%. Through implementing lean, the companies focused on JIT delivery of raw materials, proper equipment layout etc. which ultimately reduced the overall lead time to complete an order.

4.1.5 Quality Improvement

In response to a question-"What is the average quality improvements in the company due to lean implementation?"- the

surveyed companies reported that their quality improved to a maximum of 80% and minimum of 10%. While 33% of the companies had 10% to 20% quality improvement, similar proportion of the companies achieved quality improvement ranging from 41% to 60% (Table A8).

About one-fifth of the companies had 21% to 40% improvement in quality while only one company showed 61% to 80% improvements. From the discussion it is revealed that this was achieved by following the buyers' prescribed quality system as well as quality control process.

4.1.6 Manufacturing Cycle Time

In a lean production system, continuous endeavors need to be made for the reduction of manufacturing cycle time. The higher the improvement in cycle time (i.e., reduction in the time taken), the greater is the gain to the company in terms of lead time as well as timely delivery of products**.** Because the company can make more product in a given time and can make fast delivery. In the present study, the companies experienced some gains in terms of reduction in manufacturing cycle time that ranged from 5 minutes to 20 minutes (Table A14), thereby indicating a time-savings of 12.5% to 33.33%.

It is worth-mentioning that in a garment factory the sequence of work for making a product is fixed up in terms of minutes. This is because many products require less than an hour of time from the beginning to the end of the cycle.

4.2 Business Challenges Faced by the Companies to Practice Lean

Table A9 shows the response to the question: "What business challenges have driven the company to practice lean?" The majority (56%) of the companies showed high competition as a major challenge to practice lean followed by the pressure from customer-company (22%), cost reduction (22%), reduced order or losing market demand (22%). In addition to these business challenges, the reasons to change to lean production techniques arose from a number of different sources in a few companies, such as (Table A10):

- Desire to minimize costs by reducing inventory
- Intention to satisfy customers
- Encouragement of foreign buyers to introduce lean for cutting costs of production
- motivation from promoters/employees
- improving the current condition
- searching for best practices

The reasons toward lean production practice were not common for all companies, except a few. The above changes occurred for various reasons. Customer satisfaction is at the centre of all production functions. And customers cannot be satisfied unless they can be given products with the right quality with the competitive prices. So, the desire to maximize customer satisfaction led the firms to implement lean practices. The buyers abroad as well as the owners also encouraged the management of the companies to move from traditional production system to more improved system for reducing costs that would eventually reduce prices of products. Management people also intended to improve the current, traditional system of production in order to be more competitive in the market. One company also learned about the lean system while they searched for best practices in other competitive companies.

4.3 Areas Where Changes Have Been Made

Majority (78%) of the companies said that changes in product design and manufacturing process occurred in their organization as a result of lean implementation; 44% respondents indicated a change in supplier networks and the remaining (22%) focused on factory management followed by inbound logistics (11%) and outbound logistics (11%) (Table: A15).

In addition, companies mentioned a variety of changes that took place within their organizations (Table A 11). These include:

- cultural change
- education of workers and suppliers
- empowerment of employees
- commitment of top level managers
- relationship with suppliers
- rearranging the manufacturing process
- creating awareness

Managers need to address required changes for lean implementation. In this study different companies have indicated and experienced different changes such as cultural change, education of workers and suppliers, empowerment of employees, commitment of top level managers, relationship with suppliers, rearranging the manufacturing process and creating awareness.

5. Conclusion

Lean production reduces all forms of non-value added activities in organizations and improves its performance. From the analysis of the data collected, it appears that companies that adopt lean manufacturing as a working philosophy within their organizations can make significant improvement in terms of their operational performance even if it is in a modified format that best suits their particular business culture. It is obvious that there are strong benefits to be gained from implementing a lean manufacturing culture, as demonstrated by the companies in this study.

In order to obtain information about the improvement in manufacturing performance through lean production practices in the selected Bangladeshi garment firms, the study examined the adoption of various lean tools. In addition to this the study also identified the business challenges faced by the companies to practice lean as well as the areas where changes have been made to implement lean successfully.

6. Recommendations for Future Research

The study results indicate some recommendations for further work. This is the first pilot study in this area with a small sample size and therefore a follow up study is needed. It would be more illuminating to conduct a longitudinal study to understand the long-term effects and benefits of lean in the Bangladeshi garment industry. In addition to this, relationship with local suppliers and how to build strong and long-term relationship should be studied further. A meaningful recommendation that can be put forward for the Bangladesh Government is that it can work for creating a level playing field for the garment manufacturing firms, in particular, to practice lean production systems mainly through making arrangement for relevant training programs and development of necessary physical infrastructures.

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APPENDIX-1: STATISTICAL TABLES (based on the questionnaire and Interview)

Table A1. Legal Status of Companies

	Legal status	Percentage
(a)	Public Limited Company	22
(b)	Private Limited Company	33
(c)	International joint venture company	45
	Total	100

Table A2. Year of starting lean based on the year of establishment of the companies

Year	No. of companies	Percentage
1st Year	3	55
4th Year	1	11
6th Year	1	11
9th Year	1	11
11th Year	1	11

	Organizational Structure	
	Nature of structure	Percentage
(a)	Tall functional structure (long hierarchy)	44
(b)	Flat structure (team based)	56
(c)		
	Total	100

Table A3. Number of local and foreign suppliers of raw materials

	Number of suppliers	Percentage
(a)	1-10	33
(b)	11-50	45
(c)	>50	22
	Total	100

Table A4. Supply related information

	Particulars of supply	Percentage
a)	Company intends to maintain long stable relationship with suppliers	100
b)	The main suppliers are in close proximity	44
c)	The company has reduced the number of suppliers over the last five years	22
d)	Suppliers are dependable in terms of timely delivery	100

Table A5. The different lean techniques the companies have adopted (Multiple responses)

	Lean techniques	Percentage
(a)	Kanban	66
(b)	Daily schedule adherence	100
(c)	Small lot size	100
(d)	Just-in-Time	100
(e)	Physical arrangement of equipment	89
(f)	Application of preventive maintenance	89
(g)	Pull production systems	100
(h)	Continuous improvement	78
(i)	5S	44
(j)	Other quality practices (QC)	100

Table A6. Savings resulting from lean practices

	Nature of savings	Percentage
a)	Savings of the company over 12 months period	44
b)	No savings over 12 months period	56

Table A7. Productivity increase resulting from lean practices

	Average productivity increase after implementation of lean	Percentage
	10%-20%	67%
	40%- 60%	33%

Table A8. Quality improvements resulting from lean practices

	Views about quality increase	Responses (%)
	The average (%) quality increase in the company after lean implementation	
	(a) 10%-20%	
	(b) 21%-40%	33
	(c) 41%-60%	22
	(d) 61%-80%	33
		11

Table A9. Business challenges those have driven the companies to practice lean

	Types of challenges	Percentage
	Pressure from customer company	22
	To beat the competitors	56
	Cost reduction	22
	Reduced order/ loosing market demand	22

Table A10. Reasons towards lean production practice

	Element	Percentage
	Customer satisfaction	11
	Minimization of cost by reducing inventory	22
	Motivation from buyers	11
	Motivation from customers	11
	Motivation from promoters/employees	11
	High Competition	22
	To improve the current condition	11
	Searching for best practices	11

Table A11. The changes required to be addressed while implementing lean those have been experienced by the companies

	Required changes to be addressed	Percentage
	Cultural change	22
	Education of workers and suppliers	22
	Empowerment of employees	1
	Commitment of top level managers	1
	Relationship with suppliers	1
	Rearranging the manufacturing process	1
	Changes in the traditional work environment	1
	Creating awareness	1

Table A12. Reduction in unit production cost

Company	Before Lean ($)	After Lean ($)	Reduction ($)	As a %
1. Fashion Point Ltd.	8.50	7.00	1.50	17.6
2. Texas Fashion Ltd.	11.0	9.00	2.00	18.1
3. Beximco Fashions Ltd.	4.40	3.20	1.20	27.2
4. Shanta Industries Ltd.	10.0	8.00	2.00	20.0
5. DADA(Savar) Ltd.	1.40	1.30	0.10	7.1
6. Shata WashWorks Ltd.	3.50	3.00	0.50	14.2
7. Armana Fashions Ltd.	0.87	0.84	0.03	3.4
8. Shanta Denims Ltd.	-	-	-	-
9. PAXAR Bangladesh Ltd.	4.50	3.00	1.50	33.3

Table A13. Total amount of time (average number of days) taken to complete an order from raw materials to manufacturing

Company	Before Lean	After Lean	% gain due to Reduction
1. Fashion Point Ltd.	30	15	50
2. Texas Fashion Ltd.	16	13	19
3. Beximco Fashions Ltd.	80	70	13
4. Shanta Industries Ltd.	120	90	25
5. DADA(Savar) Ltd.	40	25	38
6. Shata WashWorks Ltd.	42	28	33
7. Armana Fashions Ltd.	60	55	08
8. Shanta Denims Ltd.	120	105	13
9. PAXAR Bangladesh Ltd.	60-90	40-45	33-50

Table A14. The amount of time (hour/minutes) to accomplish standard work sequence for making a product

Company	Before Lean (minutes)	After Lean (minutes)	Reduction (minutes)	% of reduction
1. Fashion Point Ltd.	60	40	20	33
2. Texas Fashion Ltd.	30	15	15	50
3. Beximco Fashions Ltd.	55	49	06	11
4. Shanta Industries Ltd.	75	60	15	20
5. DADA(Savar) Ltd.	50	39	11	22
6. Shata WashWorks Ltd.	60	40	20	33
7. Armana Fashions Ltd.	50	40	10	20
8. Shanta Denims Ltd.	60	40	20	33
9. PAXAR Bangladesh Ltd.	40	35	05	13

Note: The percentages have been rounded to nearest figure.

Table A15. Areas of organization where changes were made

#	Areas of changes	Percentages
1	Product design	78
2	Inbound logistics	11
3	Outbound logistics	11
4	Manufacturing Processes	78
5	Supplier network	44
6	Factory management	22

Business Ethics Reflected in Sanlu Milk Incident

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Abstract

The whole society has been shocked by the negative influences of Sanlu Milk Incident, including researchers, who have begun to explore this issue from diverse perspectives, such as food safety, crisis management, state supervision and so on. Based on the author's research area ― business ethics, this article analyzes the causes of Sanlu Milk Incident one by one with the theories of business ethics in order to offer ideas for enterprise operators as well as relevant departments in this industry when solving issues of this kind.

Keywords: Milk Incident, Business ethics theory, Business ethics analysis

With China lying in the historical period involving the conversion from traditional planned economy to modern market economy, a lot of immoral and unethical management behaviors exist in its economic area during the process of economic system conversion and social transformation. Sanlu Milk Incident, which has attracted great attention from all Chinese people, especially that from the Party Central Committee, is attributed to many aspects. This article aims at exploring its causes as well as conducting an analysis on them from the perspective of business ethics in order to provide basic ideas for solving issues of this kind.

1. Milk Incident

Sanlu Milk Power had caused 4 deaths and 6244 confirmed cases up to September 18th, 2008 due to its melamine. The subsequent sample inspection also revealed that a few batches of products of 20% dairy enterprises contained melamine and therefore were defective products, among which there were many well-known brands, such as Yili, Mengniu, Guangming and so on.

Melamine, a low poisonous chemical, mainly leads to kidney stones, especially among babies.

This food safety incident had wider influences than that in Fuyang, Anhui in 2004, involving not only many well-known dairy brands but dairy farmers who had to throw away their milk or even intended to kill their cows because there was no enterprise buying their milk. In addition, consumers refused to buy domestic milk powder. It is Sanlu Milk Incident that has almost ruined the whole dairy industry, even the whole food industry.

In order to solve this incident in the proper way with the shortest time, the Party Central Committee, taking an attitude of supreme responsibility to the people, took many administrative and legal measures to consolidate dairy industry. Perhaps someone may ask why so many enterprises and individuals would take such great risks to sacrifice the people's interests or even lives for dishonest gains. Are there any other reasons besides the disorder of the dairy market, imperfect supervision system and poor monitoring? This article tries to explore those deep-level problems in enterprise development triggered by Sanlu Milk Incident.

2. Theories of Business Ethics

In order to have a better analysis on Sanlu Milk Incident, some necessary business ethics theories will be given briefly below first of all:

2.1 Moral Evaluation Theory

Two schools are in existence in the theories of ethics, that is, Teleology or Consequentialism and Deontology. Therefore, moral evaluation involves the two aspects as well. Manuel G. Velasquez elaborates on moral evaluation from five aspects including Utilitarianism, theories of right, justice, caring and virtues in his book *Business Ethics― Concept and Cases*. In spite of their respective value in one aspect of behaviors, none of the five theories includes all factors that need to be considered in moral evaluation. (Zhou, 2005)

2.2 Enterprises' Responsibilities for Consumers

There are three typical ideas concerning this issue: Contract Theory, Theory of Reasonable Care and Theory of Social Cost. According to Contract Theory, it is a contract relationship between enterprises and consumers, in which enterprises' moral responsibilities for consumers are determined by this relationship. Accordingly, there are four major moral obligations taken by enterprises: obeying their contracts, disclosing, never misleading or forcing customers. It is claimed by Theory of Reasonable Care that the seller and the buyer has unequal status and the buyer tend to be vulnerable due to their lack in necessary knowledge and skills. Because of enterprises' advantages, it is up to them to take the responsibility of reasonable care so as to prevent consumers' interests from being damaged. According to Theory of Social Cost, enterprises should be responsible for any damages caused by products' defects and pay for that. There is no exemption even if they have fulfilled their obligations. In addition, even when a major mistake is made by an individual, the whole company should be responsible for that. (Zhou, 2005)

2.3 Theory of Contradiction between Morality and Interest

Here, moral operation means that conforming to morality. People holding this theory claim that enterprises will suffer from losses if they conform to morality and immorality will benefit them. Another relevant theory claims that if other enterprises or individuals disobey morality while they obey it, they will suffer from losses. (Zhou, 2007)

2.4 The Interaction System of Business Ethics and Business Effectiveness

The relations between business ethics and business effectiveness are of particular importance. However, it is revealed by researches that only a low linear relation exist between them. Only when an intermediate variable is added between the two will their relation be clearly exposed. There are three major factors influencing enterprises' moral commitment and ethical behaviors, including enterprises' environmental factors, entrepreneurs' moral quality as well as enterprises' effectiveness.

Business effectiveness has direct and indirect influences on business ethics. Its direct influences lie in that it will enhance enterprises' financial capacity, hence providing material guarantee for the practice of their ethics. In addition, it also enhances some relevant business ethics directly through result feedback. Business effectiveness exerts its indirect function on business ethics by influencing enterprises' moral commitment. (Su, 2008)

2.5 Product Quality Safety Ethics

This theory includes reasonable safety, safety evaluation and product liability. Enterprises' moral responsibilities in this aspect are mainly intended to provide consumers with safe and healthy products. (Cao, 2007)

2.6 Ethics in the Relationship between Enterprises and Stakeholders

This includes the ethics between enterprises and managers, enterprises and employees, enterprises and consumers, enterprises and suppliers, enterprises and competitors, enterprises and environment and business ethics and relevant decisions in transnational management.

3. Analysis on Business Ethics Based on Sanlu Milk Incident

Based on the above theories on business ethics, we'll analyze problems one by one based on Sanlu Milk Incident.

3.1 Analysis on Moral Evaluation Theory

The five theories of ethics mentioned above constitute the basis for most moral judgments. According to Utilitarianism, only when the total utility produced by one's behavior is greater than that from any other behavior in that condition is the behavior regarded as moral. In Sanlu's case, even if there are other measures in that condition, the total utility produced by adding melamine isn't the greatest one. Therefore, what Sanlu did is immoral. Happiness or pain doesn't only apply to doers but also all people influenced by a specific behavior. That is to say, the pain experienced by the parents of those babies suffering from or even dying from the milk with melamine as well as the whole society are much greater than those beneficiarios' happiness. Happiness or pain, in this sense, means direct and immediate one as well as indirect and long-term one. Therefore, when evaluating Sanlu Milk Incident, not only consumers' sufferings caused by it, but also its chain effect on dairy enterprises and food industry should be taken into consideration. For example, products of relevant enterprises fall into poor market, stock prices are on the decline, corporate image is damaged seriously and the whole society falls into a state of psychological panic.

In addition, what Sanlu did also infringes consumers' legal and moral rights, which are sacred as laid down in Constitution of People's Republic of China. Seen from Theory of Justice, Sanlu goes against the code on fair transaction because it fails to fulfill its obligation in caring for consumers laid down in their contracts. Theory of Virtues claims that moral life is intended to practice, display virtues as well as cultivate them. As long as we practice and display virtues in our behavior and our behavior make us more moral, this is moral indeed. What Sanlu did, quite different from this, can only be defined as immoral behavior.

3.2 Analysis on Enterprises' Responsibilities for Consumers

According to Contract Theory, Sanlu should keep to their commitments laid down in contracts in guaranteeing their products' quality safety, informing its consumers of the ingredients contained in its products. However, it is claimed in Theory of Reasonable Care that the buyer and the seller share unequal status. Enterprises who take the advantageous position no matter in product design, production or information supply are expected to care for their consumers by guaranteeing the safety of their products. According to Theory of Social Cost, enterprises should be responsible for all the costs caused by their products' defects, which will lead to more effective use of social resources by internalizing all these costs into their product prices.

3.3 Analysis on Theory of the Contradiction between Morality and Interest

Some hold the opinion that enterprises are organizations with maximized profit and profit is the most important goal for enterprises. Therefore, with fierce market competitions and economic targets, little space is left for morality. In addition, according to this theory, immoral behaviors are determined by the economic nature of enterprises, which makes the contradiction between profit and morality inevitable. However, in fact, it cannot hold water. It was long before pointed out by classical liberalism economist Smith that no market economy can go smoothly without shared moral outlook (adherence to a contract, keeping a promise and respect for partners). Even compromising modern economy liberalist Friedman doesn't deny the fact that only by following certain moral values will the expected efficiency be achieved when pursuing profit in market economy. In other words, profit and morality are not against each other. As long as basic moral values are followed in economic behaviors, immoral behaviors will be reduced.

According to this theory, enterprises' interests will be damaged with moral behaviors and conversely profits will result from immoral behaviors. Another relevant theory claims that if other enterprises or individuals disobey morality while they obey it, they will suffer from losses.

We should admit that sometimes sacrifices have to be made when keeping to morality while immoral behaviors really bring profit. However, it is equally undeniable that morality and profit propel each other, which is proved in some failing cases caused by immorality. It is proper to say that there is complex dynamic relationship between moral business and business interest, which is determined by the following factors:

First, it is dependent upon how to calculate interests and losses: to emphasize short-term interests or long-term ones? to emphasize sectional interests or overall ones? to emphasize direct interest or indirect ones? to emphasize dominant interests or recessive ones?

Second, it is dependent upon the nature of certain behavior. The more consistent public opinion is towards the immorality of a this behavior, the wider range and the greater degree its damage over stakeholders will be, the greater chances there are it will be punished, the lower chances profit can be achieved through it.

Third, it is dependent upon business environment. The more seriously immoral behaviors are revealed and punished at the social and industrial level, the more support moral behaviors can get, the more likely moral behaviors will achieve profit, the higher cost immoral behaviors will take.

Finally, it is dependent upon enterprises' efforts. Moral advantages will not change themselves into advantages in competition. The more faith enterprises have in moral business and its positive influence on their development, the more likely they will convert moral advantages into advantages in competition and input their intelligence and efforts, the more harmonious the relationship between moral business and business interest will be.

Enterprises are bound to pursue profit due to their nature. However, ethics should also be emphasized because of the society's requests. Due to enterprises' two-fold responsibilities in profit earning and morality, it is a great challenge for operators to combine the two harmoniously and effectively.

It is possible to hold both morality and profit at hand. All theories on human-oriented management, team management, strategic management, overall quality management, corporate culture, corporate image, corporate identity, excellent leadership and learning organizations are all intended to improve operation performance. However, none of them admits that immoral behaviors will help them to achieve outstanding performance. On the contrary, honesty, justice, respect and caring for stakeholders are reflected in them, which have common emphasis on business ethics in spite of their differences in theoretical system. Only after comprehending the profound ethical connotations hidden behind these theories can we really understand their nature and development trend and will they really take effects.

3.4 Analysis on the Interactive System between Business Ethics and Business Effectiveness

It can be concluded according to the above that there is only a low linear relation between business ethics and business effectiveness and an intermediate variable, such as environmental factors and entrepreneurs' moral quality, needs to be added in order to change that. Lying in the current period of social transformation, quite a few profit-oriented enterprises sacrifice social morality for their own interests, which is even got worsened by enterprises' poor moral quality, fluke mind and some so-called implicit rules. Their behaviors have not only damaged enterprises' reputation,

lowered their social status, worsened their condition, but also have hindered the sound operation of market economy, spoiled social and economic orders and even lowered social morality.

4. Conclusion

After Sanlu Milk Incident, some people have kept asking why they did so. From the perspective of business ethics, the author has reached the following conclusions: Sanlu's behavior goes against business ethics and it fails to take its basic social responsibilities for consumers, therefore, any excuse for that is nonsense. This incident is attributed to some social environmental factors, such as implicit rules, entrepreneurs' poor moral quality and their fluke mind. Their poisonous products have damaged the whole society's interests as well as theirs.

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Determinants of Herding Behavior among

Financial Analysts: A Study of French Listed Firms

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Abstract

Using a sample of 262 French firms over the period 1996-2000, we show that analysts who tend to move away from consensus and issue bold forecasts are more experienced, work for large brokerage houses, follow more firms. Bold analysts provide more precise forecasts than those who tend to herd. Thus, investors should use bold forecasts since they are more accurate and reflect more relevant information than herding forecasts.

Keywords: Earnings forecast, Herding behavior, Bold forecast, Financial analyst, Experience, Brokerage house

1. Introduction

The main role of the analysts is to provide earnings forecasts. Several professionals as the bankers, the financial advisers as well as the individual investors rely on these forecasts to establish their decisions. To really accomplish this role the analysts' earnings forecasts must be unbiased and accurate. Studies presented in the financial and accountant literature analyze such forecasts. Indeed, the results of some works of research showed that the analysts' forecasts are more exact than time- series forecasts [Brown, Griffin, Hagerman, and Zmijewski (1987a) and (1987b)].

Notwithstanding, in 1980's, the analysts' ability to anticipate future earnings has been in doubt calling on the question of whether analysts' forecasts are biased. Many studies showed that analysts are optimistic and consequently, their forecasts are biased [Fried and Givoly (1982), Brown, Foster, and Noreen (1985), O'Brien (1988), Stickel (1990), Abarbanell (1991), Ali, Klein, and Rosenfield (1992), Brown (1997 and 1998), Lim (1998), Richardson, Teoh, and Wysocki (1999), and Easterwood and Nutt (1999), Matsumoto, (1998)].

Analysts are blamed for the recent financial scandals. The press accuse them of, not to be sufficiently independent of the financial establishments which employ them, and not to have anticipated the deterioration of the financial situation of the big international groups as Enron Vivendi Universal, Worldcom..., to have followed some leaders blindly and therefore not to have been rational enough in an euphoric context, to issue biased forecasts based on management's (private) guidance to please managers. It is in this sense that some studies concluded that analysts don't contribute to improve the efficiency of the market, on the contrary, they provoke informational imperfections or anomalies.

Several factors have been advanced by several researches to explain bias in analyst's forecasts. For our part, we think that the interaction between analysts put them on the bad way and can increase errors forecasts. The interaction leads to a mimetic behaviour among some analysts who abandon their own forecasts to adopt those of their peers: to herd. Scharfstein and Stein (1990), Trueman (1994), Hong, Kubik and Solomon (2000) examine the relationship between herd behaviour among analysts and reputation, career concern and self-assessed ability. They find that experienced analysts are more likely to avoid herding behaviour, and provide bold forecasts than inexperienced analysts. These authors explain this result by the fact that inexperienced analysts are more likely to lose their job after providing

inaccurate or bold forecast. Clement and Tse (2005) show that bold forecasts are more accurate than herding forecasts. Also, Clement and Tse (2005) report evidence suggesting that analysts who issue bold forecasts are more general experienced, employed by large brokerage houses, frequent forecaster and historically accurate analysts. These results are consistent with those in Hong et al. (2000). Both papers find that more experienced analysts are less likely to herd.

Krishnan, Lim and Zhou (2005), find herding increases with general experience, forecast horizon and decreases with brokerage size and forecasting frequency. Thus, the results confirm Clement and Tse's (2005) finding that forecast boldness is associated with brokerage size prior accuracy and brokerage size. However, in contrast with Clement and Tse's findings, Krishnan, Lim and Zhou (2005) show that herding behavior increases with forecast horizon and forecasts issued by analysts with more general experience are more likely to be herding forecasts.

In the context of the French marketplace, reasons of the herding behaviour among the financial analysts remain unexplored and the questions remain still arisen: Why do some analysts abandon their own information to copy the ideas of others? Are herding forecasts more accurate than bold forecasts? The purpose of this paper fits in this setting and aim to identify, in the French context, the determinants of analysts herding behavior.

First we classify forecasts as bold if they are above both the analyst's own prior forecast and the consensus forecast immediately prior to the analyst's forecast, or else below both. We classify all other forecasts (i.e., those that move away from the analyst's own prior forecast and toward the consensus) as herding forecasts (Clement and Tse, 2005, Gleason and Lee, 2003) (Note 1). Then we identify the characteristics of analysts who tend to herd, therefore judge what is the more accurate: Bold or herding forecast. To our knowledge, our study is the first to investigate factors that could affect analysts' behavior.

2. Prior research

2.1 Definition

The theories of herding, one of which was the basic models in Scharfstein and Stein (1990), Bikhchandani, Hirshleifer and Welch (1992), Banerjee (1992), Zwiebel (1995), and Prendergast and Stole (1996) assume that individual is a communicator: he issues and receives informative signals. Hirshleifer (1995) notes that the transmission of information between individuals can take different shapes: individuals can observe either all information detained by others, either the result of their private calculations, either solely the actions achieved by another having already been confronted by the same choice. The individual tends to herd if he bases exclusively on the positions taken by others. For Bikchandani and Sharma (2000), an individual can be said to herd if she would have made an investment without knowing other investors' decisions, but does not make that investment when she finds that others have decided not to do so. Hirshleifer and Teoh (2001) assign by "herd behavior" the convergence of behaviors and by "informational cascades" the situations where the individual chooses his action based on the observation of other regardless of his own informational signal. According to Artus (1995), herding behaviour is rational, this means that the market organization and the information transmission imply that is rational for some analysts to copy others while forgetting their private information. In this case, the individuals abandon their own beliefs and base their decisions on the collective actions even though doing this contradicts their own predictions. Jondeau (2001) supposes that herding behavior is intentional when investors imitate the behavior of their peers deliberately. In summary, if herding behavior can be explained by different reasons and that if for certain it results from irrational and irresponsible behavior, for others herding is rational.

2.2 Herding behaviours among financial analysts

Scharfstein and Stein (1990) and Trueman (1994) were the first to investigate the herding behaviour among analysts. The authors stipulate that, in some cases, the analyst A prefers to copy the forecasts issue by the analyst B that he judges "superior" (Note 2) even when this is not justified by his own information. Since the article of Trueman (1994), the financial literature includes some attempts to model the influence that analysts exert reciprocally while they are producing their recommendations (Note 3) and forecasts.

Thus, several studies in accounting investigate the effect of experience on herding behavior. Scharfstein and Stein (1990), argue that the manager tends to herd if he is less confident about her competence. Trueman (1994) predicts that the initiative of herding among managers decreases with the manager's perceived competence. Trueman (1994) finds that the analyst tends to copy the behavior of the more strong to avoid revealing her lack of expertise.

Using a sample of 8,421 security analysts producing earnings forecasts between 1983 and 1996, Hong et al. (2000) investigate whether herding behaviour is influenced by career concerns. They assume that forecasts behaviour (herd or bold) differs between inexperienced (young) and experienced (older) security analysts. Since more experienced analysts have been more confident, they probably issue bold forecast. Hong et al. (2000) find that inexperienced analysts are more likely to exhibit herding behaviour than more experienced. They show also that, inexperienced analysts who issue inaccurate or bold forecasts are more likely to leave profession than experienced analysts. Additionally, older analysts are also more likely to issue timely forecasts and to revise their earnings forecasts less than younger analyst.

Clement and Tse's (2005) study, extends Hong et al. (2000) by examining the importance of experience as well as other characteristics that proxy for analyst's self-assessed ability such as the analyst's prior accuracy, brokerage size, forecast frequency, and the number of companies and industries followed by analyst, for explaining forecast boldness. First, Clement and Tse (2005) classify each analyst's last earnings forecast for a given firm-year as either herding or bold. They classify forecasts as bold if forecasts are either above or below both an analyst's own prior forecast and a prevailing consensus. All other forecasts are classified as herding forecasts. First, they find that bold forecast are more past accurate forecaster, employed by larger brokerage houses, issue forecasts more frequently and enjoy more general experience. In contrast, bold forecast are issued by analysts who follow a large number of industries. Second, they find that bold forecasts are more accurate than herding forecasts, this suggests that bold forecasts reflect more relevant and private information than herding forecasts.

Using IBES forecasts data from 1989-2004, Krishnan et al. (2005) find that 85% of analysts tend to herd while 5% prefer to stand out of crowd (anti herding). Krishnan et al. (2005) identify some empirical determinants of herding behavior among analysts. They find that herding is increasing with prior forecast inaccuracy, forecast horizon, general experience and the number of industries followed, and is decreasing with brokerage size and forecasting frequency. With the exception of the effect of experience and forecast horizon, Krishnan et al.'s (2005) results seem to be consistent with those in Clement and Tse (2005).

3. Hypotheses and empirical design

3.1 Hypotheses

3.1.1 Forecast accuracy

Welch (2000) shows that analyst could issue forecasts closer to consensus he was wrong yet. This suggests that imitate consensus reveals less precise and informative forecasts. Similary, Zitzewitz (2001) and Ottaviani and Sorensen (2003) explain the imitation by the fact that some analysts are abandoning their own sources of information for blindly following the behavior of others, while the distinction from the consensus reveals a self-confidence, charisma and possession of better information. In the same way, Galanti (2004) conjectures that a distinct forecast from consensus is more accurate than imitated since the analyst has spent all his time studying the company followed, therefore information obtained by his work has a good quality and may even be better than the average forecast (consensus).

Recently, Clement and Tse (2005) conclude that bold forecasts reveal information beyond that obtained from herding forecasts. Clement and Tse (2005) add that bold forecast is more accurate than herding forecast because it reflects private information that other analyst doesn't have. In agreement with prior research we assume that bold forecasters are likely to use a variety of information sources when developing their earnings forecasts, this can explain the superiority of bold forecast in term of accuracy. This leads to our first hypothesis:

H1: Bold forecasts are more accurate than herding forecasts

3.1.2 Effect of experience on herding behaviour

In this study we retain only one measure of experience: general experience (Note 4). Analyst must be polyvalent and not specialist because he works for a brokerage house and he must follow a lot of firms and industries.

Consistent with Hong et al. (2000), Clement and Tse (2005) report that the association between general experience and forecast boldness is significantly positive. In contrast, Krishnan et al. (2005) find that more general experienced analysts tend to herd. We contribute towards this debate, by examining the relation between experience and herding forecasts in French context.

To formulate our hypothesis we build on prior researches that investigate the effect of experience on forecast accuracy [see, for example, Hutton and McEwen (1997), Mikhail, Walther, and Willis (1997), Clement (1999), Jacob et al. (1999), and Mikhail, Walther, and Willis (2003), Drake and Myers (2008)] (Note 5). These studies suggest that individual analyst forecast accuracy improves as analysts gain experience. Financial analysts' forecasting skills should improve with repetition and feedback, as suggested by the learning by doing model (Arrow, 1962). We think these studies support the positive relation between experience and forecast boldness. If experienced analysts issue accurate forecasts, we predict they have not incentive to herd. In other words, inexperienced analysts who issue inaccurate forecasts tend to herd to hide their bad performance. This leads to our second hypothesis:

H2: inexperienced analysts are more likely to herd toward consensus than experienced analysts.

3.1.3 Effects of brokerage house's size on herding behaviour

Krishnan et al. (2005) suggest that analyst tends to herd if she works for smaller brokerage house. This result is consistent to those reported in Clement and Tse (2005) who find that analyst who works for smaller brokerage house is more likely to act by herding behavior.

We think that herding behavior decreases with brokerage size. First large brokerage houses help their analysts by providing them different sources of information such as databases, forecasting tools, forecasts technology. Jacob et al. (1999) expect that analysts working for larger brokerage houses will have easier access to relevant information, increasing the likelihood that they will incorporate this information into their forecasts. Second larger brokerage houses attract also efficient analysts. Then, if larger brokers make available to their analysts several sources of information, therefore analysts will publish forecasts that reflect their own information without the others' decisions have an effect on their behavior. Thus we expect that analysts who work for larger brokerage houses have less incentive to herd. This leads to our third hypothesis:

H3: analysts employed by larger brokerage houses are less mimetic than those working for medium -and small- sized houses

3.1.4 Effects of portfolio on herding behavior (Note 6)

According to Clement (1999), it is difficult for analysts who follow several companies, to perform effectively their obligations and produce accurate forecasts. Thus, Clement (1999) shows that the more the analyst follows a large number of firms, the less he focuses on thoroughly each firm and therefore provides less accurate predictions. In agreement to this paper, we conjecture that herding behavior is rather associated to analysts who follow a large number of firms we propose to test the following hypothesis:

H4: Analysts working on a large number of firms are more mimetic than others.

3.1.5 Effects of forecast horizon on herding behavior

Forecast horizon is the difference between the forecast date and the earnings announcement date. At least three reasons favor the positive relation between forecast horizon and herding behavior.

First, analysts are considered as specialists and information researchers. They have to know regularly the private and public information. They anticipate the value of benefits and revise their expectations as they are in possession of new information. Analysts incorporate in their forecasts recent information as they became closer to announcement date. We expect that forecast closer to the announcement date reflects certainly all available information and therefore it's a bold forecast.

Second Brown et al. (1987), Brown, Richardson, and Schwager (1987), and Kross, Ro, and Schroeder (1990) document that analyst forecast accuracy improves as the forecast date is closer to the earnings announcement date. As a consequence, when earnings announcement dates are approaching, analysts have less incentive to herd since they have had more information and have been more accurate.

Third, Krishnan et al. (2005) find that herding forecast is significantly positively associated with forecast horizon. Nevertheless, there are some reasons to believe that herding behavior may not increase with forecast horizon.

First, closer to the announcement date, analyst can observe forecasts of his peers and thus may abandon its own forecast to imitate those of others. Second, Clement and Tse (2005) find that bold forecasts are significantly positively associated with forecast horizon. This result suggests, in contrast to Krishnan et al.'s (2005) findings, that forecasts that have larger forecast horizons (Note 7) are more likely to be bold.

As shown above, the relationship between herding behavior and forecast horizon is subject to controversial results. We should highlight the effect of forecast horizon on herding behavior in the French context. We propose to test the following hypothesis:

H5: Herding behavior increases with forecast horizon.

3.2 Sample selection

Our sample begins with all French listed firms with December 31st fiscal year ends, appearing in the Worldscope database over the 1996-2000 five-year period. We exclude all financial establishments (SIC codes 6000–6999) because of the specificity of their rules accountants. Institutional Broker Estimate System (I/B/E/S) detail file provides individual analysts' earnings forecasts. We use the last annual forecast made by each analyst within 120 days before year t-1 earnings announcement date. We use also the earnings per share (EPS) provided by I/B/E/S Actual file (Note 8). Earnings announcement dates are obtained from two sources: press release and I/B/E/S Actual file. We require non-missing information for (1) the value of the forecast, (2) the corresponding actual earnings, (3) date of the forecast, (4) earnings announcement date. We exclude firms followed by fewer than three analysts. We require each analyst to issue at least two forecasts for firm j in year t. The final sample consists of 262 companies and 9997 firm-year observations spanning 5 years (1996-2000).

3.3 Measurement of variables and empirical model

Following prior research we describe our variables:

$HERD_{ijt}$ is an indicator variable for herding of analyst i's forecast for firm j in year t. It is equal to 1 if analyst i's forecast moves away from the analyst i's own prior forecast and toward the consensus. It is set to 0 otherwise (Clement and Tse, 2005). Figure 1 explains more this variable by providing a bold or herding forecast's classification.

$PMAFE_{ijt} = AFE_{ijt} - \overline{AFE_{jt}} / \overline{AFE_{jt}}$, is the proportional mean absolute forecast error calculated as the analyst i's absolute forecast error of firm j for year t (AFE_{ijt}) minus $\overline{AFE_{jt}}$: the mean absolute forecast error for firm j for firm t (Note 9) scaled (Note 10) by the mean absolute forecast error for firm j for firm (Note 11). Forecast error is defined as the difference between I/B/E/S actual annual earnings and the last forecast made by the analyst within 120 days before year t-1 earnings announcement.

$DGEXP_{ijt}$, is a measure of analyst i's experience, calculated by the number of years that analyst appears in the data set minus the average number of years analysts following firm j at time t appeared in the data set.

$DBZISE_{ijt}$ is a measure of the analyst i's brokerage size, calculated as the number of analysts employed by the brokerage employing analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t.

$DAPFE_{ijt}$ (analyst's portfolio) is a measure of the number of firms analyst i follows calculated as the number of firms followed by analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t.

$DAGE_{ijt}$ (forecast age or horizon) is a measure of time from the forecast date to the year t-1 earnings announcement date, calculated as the forecast horizon (the number of days between the forecast date and the earnings announcement date) for analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t.

Variables are defined, and we have to describe the model adopted to test our hypothesis. Thus, we follow Clement and Tse (2005) using our annual data by estimating the following Logit model:

$HERD_{ijt} = \alpha_0 + \alpha_1 PMAFE_{ijt} + \alpha_2 DGEXP_{ijt} + \alpha_3 DBZISE_{ijt} + \alpha_4 DAPFE_{ijt} + \alpha_5 DAGE_{ijt} + \varepsilon_{ijt;}$

4. Empirical results

4.1 Descriptive statistics and correlations

Table 1 presents descriptive statistics of the variables used in our survey. Consistent with prior studies, we find that analysts' one-year-ahead earnings forecasts are optimistic on average; the mean forecast error is -1.6137. However the median is -0.1593, this is consistent with several studies that document that analysts become less optimistic when earnings announcement dates are approaching (e.g, O'Brien, 1988). Average experience is 4.0992, Analyst follows on average 11 French firms and brokerage houses employ approximately 20 analysts on average. Average forecast horizon is around 44 days, analysts seem to wait for the earnings announcement date to issue their forecasts.

In order to avoid problems of autocorrelation between our independent variables, a survey of correlation matrix has been done: table 2 presents the Pearson correlations for independent variables adopted in our model. In terms of Pearson correlation coefficients, we find that general experience is positively and significantly correlated with analyst's portfolio. Therefore, more experienced analysts tend to follow a larger number of firms. To avoid all problems of auto-correlation in a linear regression, we are going to treat the variable experience and analyst's portfolio in two separated models. Finally we test our hypothesis using the two following equations:

$$HERD_{ijt} = \alpha_0 + \alpha_1 PMAFE_{ijt} + \alpha_2 DGEXP_{ijt} + \alpha_3 DBZISE_{ijt} + \alpha_4 DAGE_{ijt} + \varepsilon_{ijt} \qquad (1)$$

$$HERD_{ijt} = \beta_0 + \beta_1 PMAFE_{ijt} + \beta_2 DBZISE_{ijt} + \beta_3 DAPFE_{ijt} + \beta_4 DAGE_{ijt} + \varepsilon'_{ijt} \qquad (2)$$

4.2 Analysts' characteristics and herding behavior

We reports in Table 3 the results from the estimation of equations (1) and (2) determining the effect of forecast accuracy, general experience, brokerage size, portfolio, forecast horizon on herding behavior among financial analysts. In our sample, we find that forecast error is significantly and positively associated with herding behaviour (however, the t-student does not exceed 1.71 in both cases). Analyst fails when he reconsiders his own information to copy the consensus. Analyst who uses his own information and therefore doesn't adopt a herding behavior issues more accurate forecast. This result confirms our first hypothesis, then bolder analysts who tend to move away from the consensus produce more accurate forecast. May be they have information that other analysts don't have or they maintain good relationship with managers. This result is consistent with Clement and Tse (2005).

Concerning the variable general experience, it is negatively and significantly related with herding behaviour. The coefficient on general experience is -0.1026, this result is significant at the 1% level. This suggests the fact that analysts have some information and they could publish perfect forecasts based on information available to them, others'

decisions have no effect on their behavior. On the other side, the inexperienced analysts have a minimum level of knowledge, they are more likely to care about their career and they are aware that a more important error than those of their peers, can put on risk their reputation and their career, they have no other choice only distort their forecasts in response to specific interests. Therefore, they are more likely to move away from their own prior forecast and toward the consensus to meet their own interests.

Regarding analyst's portfolio, the p-value indicates that analysts tend to herd if they follow less number of firms. This result is consistent with this in Krishnan et al. (2005). However, Clement and Tse (2005) report different result for this coefficient, it seems that analyst's portfolio does not have effect on herding behavior. In our study we find that analysts who follow a larger number of firms are less likely to herd. This result is reasonable since we have found that more experienced analysts, who are bolder, follow more firms.

The results also allow us to see that the brokerage size appears to be significant in explaining the herding behaviour. The coefficient relating to this variable is negative and significant at the 1% level. This confirms our fourth hypothesis and joined the results of various studies (Clement and Tse, 2005; Krishnan et al., 2005) that have concluded that analysts employed by large firms are less likely to herd and provide forecasts that reflect their own private information.

The forecast horizon's coefficient is positive but insignificant for both equations. Forecast horizon doesn't seem pertinent to explain analyst's behavior. This finding indicates that neither herding behavior increases with forecast horizon (Krishnan et al. (2005), nor bold forecast increases with forecast horizon (Clement and Tse, 2005).

5. Conclusion

In this study we focused on identifying factors that could explain herding behavior among financial analysts in a French context. The results show that analysts who move away consensus and issue bold forecasts based on their own information are more efficient in terms of accuracy. Similarly, they are more experienced and work for larger brokerage houses. We also find that analysts issuing herding behavior tend to cover fewer firms, this finding contrasts with Clement and Tse (2005). Finally, contrary to previous studies, in our sample, forecast horizon has no effect on herding behavior. To our knowledge, these results are new to the literature. The coefficient relating to forecast horizon is positive suggested that closer to earnings announcement dates, information will be more available, and analysts are more likely to issue bolder forecasts reflecting their own information, however this result is insignificant. When information is more provided, analysts could not look after their peers' signals. The effect of information's quality and herding behavior calls for future research.

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Notes

Note 1. Gleason and Lee (2003) call the bold forecasts as high innovation and the herding forecasts as low- innovation forecasts.

Note 2. The analyst A judges that the Analyst B is more efficient (superior) in terms of forecasts accuracy.

Note 3. Graham (1999) shows that newsletters classified to have both high reputation and low ability, follow Value line in their market-making decision. Using the Zacks'Historical Recommendations Database (1989-1994) Welch (2000) finds that the prevailing consensus and the two most recent revisions have a positive significant influence on the next analyst's recommendation.

Note 4. Prior research identifies two measures of experience: firm specific experience and general experience.

Note 5. These studies investigate the association between analyst characteristics (e.g., general experience, firm-specific experience, and/or broker size) and forecasting performance.

Note 6. Analyst's portfolio designs the number of companies followed by that analyst.

Note 7. Large forecast horizon means many days elapsed between the forecast date and the earnings announcement date.

Note 8. IBES adjusts EPS to be in the same basis as analysts' forecasts.

Note 9. Clement (1998) controls for firm-year effects by subtracting from all variables their related firm-year means.

Note 10. Clement (1998) shows that deflating $AFE_{ijt} - \overline{AFE_{jt}}$ by $\overline{AFE_{jt}}$ reduces heteroscedasticity.

Note 11. For example, if three analysts follow firm j in a given year t and their absolute forecast error are 0.15, 0.2 and 0,1 respectively, the mean absolute forecast error for firm j in that year $\overline{AFE_{jt}}$ would be *0.15* (i.e, (0.15 + 0.2 + 0,1)/3). The proportional mean absolute forecast error *PMAFE* of firm j in that year would be *0* (i.e, (0.2 − 0.15)/0.15), *0.33* (i.e, (0.15 − 0.15)/0.15) and *-0.33* (i.e, (0.1 − 0.15)/0.15) respectively for analyst 1, 2 and 3.

Table 1. Descriptive statistics

Variables	Observations	Mean	Sdt.dev	Median
FE	9997	-1.6137	10.31832	-0.1593
EXP	9997	4.0992	2.5076	3
APF	9997	11.0346	19.7729	6
BZISE	9997	20.1442	8.8043	19
AGE	9997	43.6382	34.2403	37

FE is the difference between I/B/E/S actual annual earnings and the last analyst *i*'s forecast made by the analyst within 120 days before year *t-1* earnings announcement. EXP is the number of years that analyst appears in the data set. APF is number of firms followed by analyst *i* following firm *j* in year *t*. BZISE is the number of analysts employed by the brokerage employing analyst *i* following firm *j* in year *t*. AGE is the number of days between the forecast dates and the earnings announcement dates.

Table 2. Correlation matrix

Variables	PMAFE	DGEXP	DAPFE	DBZISE	DAGE
PMAFE	-				
DGEXP	0.017	-			
DAPFE	0.014	0.686***	-		
DBZISE	-0.026**	-0.049***	-0.11***	-	
DAGE	0.050***	0.015	-0.036***	-0.057***	-

*** : Correlation is significant at the 1% level (2-tailed)

** : Correlation is significant at the 5% level (2-tailed)

PMAFE is the individual analyst *i*'s absolute forecast error of firm *j* for year *t* minus the mean of all analysts' absolute forecast errors of firm *j* for year *t* scaled by the mean of all analysts' absolute forecast errors of firm *j* for year *t*. forecast errors is the difference between I/B/E/S actual annual earnings and analyst's forecast. DGEXP is the number of years that analyst appears in the data set minus the average number of years analysts following firm *j* at time *t* appeared in the data set. DAPFE is the number of firms analyst *i* follows calculated as the number of firms followed by analyst *i* following firm *j* in year *t* minus the mean value of this variable for all analysts following the firm *j* in year *t*. DBZISE is the number of analysts employed by the brokerage employing analyst *i* following firm *j* in year *t* minus the mean value of this variable for all analysts following the firm *j* in year *t*. DAGE is the forecast horizon (the number of days between the forecast date and the earnings announcement date) for analyst *i* following firm *j* in year *t* minus the mean value of this variable for all analysts following the firm *j* in year *t*.

Table 3. Main results from Logit Models estimates for individual analyst

$$HERD_{ijt} = \alpha_0 + \alpha_1 PMAFE_{ijt} + \alpha_2 DGEXP_{ijt} + \alpha_3 DBZISE_{ijt} + \alpha_4 DAGE_{ijt} + \varepsilon_{ijt}, \quad (1)$$

$$HERD_{ijt} = \beta_0 + \beta_1 PMAFE_{ijt} + \beta_2 DBZISE_{ijt} + \beta_3 DAPFE_{ijt} + \beta_4 DAGE_{ijt} + \varepsilon'_{ijt}. \quad (2)$$

	Coefficient	t-statistic	p-value
Model (1)			
Constante	-0.1381	-6.76***	0.000
PMAFE	0.0541	1.71*	0.087
DGEXP	-0.1026	-11.63***	0.000
DBZISE	0.0121	-4.65***	0.000
DAGE	0.0004	0.72	0.471
Model (2)			
Constante	-0.1370	-6.73***	0.000
PMAFE	0.0519	1.65*	0.099
DAPFE	-0.0090	-7.88***	0.000
DBZISE	-0.0131	-5.00***	0.000
DAGE	0.0001	0.22	0.823

***Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level

HERD is an indicator variable for herding of analyst *i*'s forecast for firm *j* in year *t*. It is equal to 1 if analyst *i*'s forecast moves away from the analyst's own prior forecast and toward the consensus. It is set to 0 otherwise. PMAFE is the individual analyst *i*'s absolute forecast error of firm *j* for year *t* minus the mean of all analysts' absolute forecast errors of firm *j* for year *t* scaled by the mean of all analysts' absolute forecast errors of firm *j* for year *t*. forecast errors is the difference between I/B/E/S actual annual earnings and analyst's forecast. DGEXP is the number of years that analyst

appears in the data set minus the average number of years analysts following firm j at time t appeared in the data set. DBZISE is the number of analysts employed by the brokerage employing analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t. DAPFE is the number of firms analyst i follows calculated as the number of firms followed by analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t. DAGE is the forecast horizon (the number of days between the forecast date and the earnings announcement date) for analyst i following firm j in year t minus the mean value of this variable for all analysts following the firm j in year t.

| Bold forecasts | Analyst's

Prior forecasts | ← | Herding

forecasts | → | Prior consensus

forecasts | Bold forecasts |
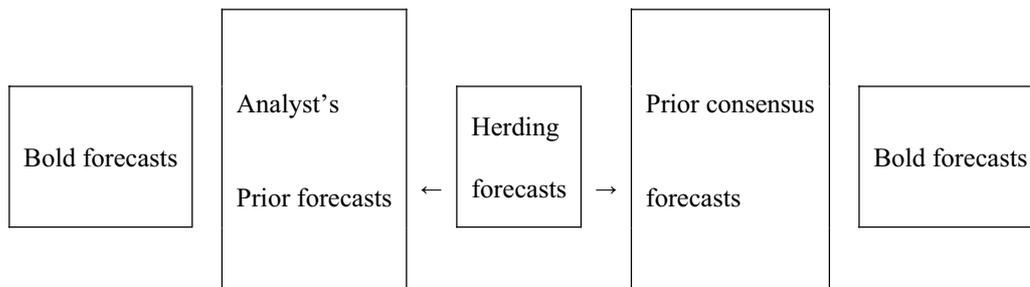
Figure 1. Bold and herding forecasts: Clement and Tse's (2005) classification.

Forecasts are classified as bold if they are above both the analyst's own prior forecast and the consensus forecast immediately prior to the analyst's forecast. All other forecasts are classified as herding.

The Mode of Dual Agricultural Insurance Institution:

Way out of the Plight of Chinese

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Abstract

Chinese agricultural insurance institution has not broken through the framework of initial choice, always evolving within the framework of unitary institution, which is the root of the plight of Chinese agricultural insurance. The way out of the plight is to establish and perfect a dual agricultural insurance institution in China, that is, existing agricultural insurance institution and organization structure should be employed in general agricultural disaster insurance, while agricultural catastrophe insurance should be led step by step by the government, with an agricultural catastrophe insurance institution gradually established and perfected, thus constructing the new mode of dual agricultural insurance institution.

Keywords: Institution plight, Way out, Dual agricultural insurance

Chinese agricultural insurance institution has undergone several stages: the mode of rural mutual agricultural insurance institution from 1934 to 1949 (Zhang, Gu and Shi 2006), the mode of government-leading agricultural insurance institution from 1949 to 1958, the mode of commercial agricultural insurance institution under government support from 1982 to 2004 (Tuo, 2003), and from 2004 on the innovative experimental mode of cooperative insurance and mutual insurance institution based on the mode of policy agricultural insurance institution. Seen from the current situation, the limited force and scope of experiment, the limitation of the mode of cooperative insurance and mutual insurance institution itself, and the conflict between the policy objective of agricultural insurance and the commercialized objective of insurance companies all result in the continuance of the plight of Chinese agricultural insurance institution.

Beginning with the plight of Chinese agricultural insurance institution, this essay discusses the causes of the plight and puts forward a mode of dual agricultural insurance institution as the way out of the plight. It tries to relate the plight of Chinese agricultural insurance institution to the question of dual agricultural insurance institution, locating the study on Chinese agricultural insurance institution in a new theoretic framework, so as to draw more attention.

1. Proposal of the Problem: Manifestation of the Plight of Agricultural Insurance Institution

There have been few successes in Chinese agricultural insurance experiment since the 20th century (Note 1). Especially from the beginning of 1990s to 2003, as an important barrier to agriculture and an institutional arrangement for supporting agricultural development, the development of Chinese agricultural insurance was in an embarrassing situation of stagnancy and atrophy (Fei 2005). In the end of 2003, the Insurance Regulatory Commission unveiled *A Preliminary Scheme of Establishing Agricultural Insurance Institution*. And since 2004, the Insurance Regulatory Commission has authorized three professional agricultural insurance companies with different management modes in

Shanghai, Jilin and Heilongjiang, according to the principle of "starting before perfecting, experimenting before popularizing." It has also carried out many forms of agricultural insurance experiments under local governments' support in provinces such as Jiangsu, Sichuan, Liaoning, Xinjiang. These experiments are gradually popularized and deepened, with an improvement of insurance scope and coverage. However, the difficulties and obstacles faced by agricultural insurance emerge accordingly, and the biggest problem is reflected in the following two aspects:

1.1 Unbearable Agricultural Loss

The biggest problem of the present mode of agricultural insurance institution is that the compensation fund can hardly meet the huge loss occurring every year, which is not only unbearable for insurance companies (see Figure 1) but also a heavy burden for national finance. For insurance companies, annual agricultural indemnity has become the primary indemnity of their mint indemnity. Zhejiang Insurance companies paid an indemnity of 181.9 billion yuan during the ten years from 1988 to 1997 because of flood, taking 80% of total indemnity. Since 1991 social property loss caused by flood is above tens of billions each year. The indemnity paid by The People's Company of China due to flood is more than 12 billion yuan, above 2 billion yuan each year. The highest annual indemnity is above 3 billion yuan. The annual huge sum of indemnity not just makes present insurance companies reluctant to insure catastrophe, but also threatens future insurance companies with bankruptcy. For the whole nation, government plays the role of ultimate and the most generous reliever in every disaster. Once we encounter a severe natural disaster, we usually mainly rely on free relief by the government and humanistic donation by the society, with the afflicted people's own effort to build a new home as complement. The state has to spend a big sum of money in rebuilding the afflicted area's economy which could have been spent on national development. This makes the central and local governments financially burdened.

Insert Figure 1 here

Insert Figure 2 here

On the other hand, due to the conflict between the high loss rate of agricultural disasters and the low income of farmers, farmers cannot bear the loss.

Take Shanxi Province for instance. According to statistics, the average annual area afflicted by drought takes 25% of the cultivated area, hail 2.7%, and frost, storm, wind disaster and flood each takes 1%. Take the year 1997 for example, the agricultural production value of this year's Shanxi Province is 22.69 billion yuan, and the real loss caused by natural disasters is 1.52 billion yuan (with drought loss excluded). The provincial economic loss caused by natural disasters takes 6.7% of the agricultural production value, each person losing 64.9 yuan. If we calculate according to such a loss rate of agricultural planting, the premium rate of agricultural insurance should be 6.7%. If we calculate according to this premium rate, each farmer has to afford an agricultural insurance premium of 64.9 yuan each year, and a four-member family has to afford a premium of 260 yuan each year. This is rather difficult for the relatively poor farmers. When drought loss is included, the premium rate is above 30%, which is in no way affordable for farmers. If all-risks insurance (including property and livestock) is carried out, the premium rate will become higher. Nevertheless, the average income of rural inhabitants in Shanxi Province in 1997 is only 1738 yuan, even lower in depressed areas. So they can hardly afford the expensive premium. The basic contradiction between the high loss rate of agricultural catastrophe and the low average income in rural areas makes the development of agricultural catastrophe operation arduous. According to basic insurance theories, premium rate should depend on the loss rate of agricultural production, and the charging standard thus determined is unaffordable for the great majority of farmers. However, if the premium rate calculated is too low, insurance companies will be out of pocket and unable to maintain their business. If this contradiction is not solved, it is impossible to carry out agricultural insurance.

1.2 Low Compensation Level of Agricultural Disaster Loss

On the one hand, agricultural disasters cause great loss for Chinese agricultural production and the loss tends to grow; on the other hand, the compensation level through insurance and almsgiving is rather low (see Figure 2).

According to survey and calculation, the average annual loss of agricultural production value to be compensated (namely, the part with a loss degree higher than 30%) is 168.159 billion yuan. The average annual compensation through disaster almsgiving is 3.731 billion yuan, 2.22% of the loss of agricultural production value to be compensated. The average annual compensation through agricultural insurance is 450 million yuan, 0.27% of the loss of agricultural production value to be compensated. Put the two together, from 1998 to 2000 the average compensation level of agricultural loss in China is 2.49%. Calculated according to rural population, in 2000 the loss of agricultural production value to be compensated is 246.89 yuan per person, while the agricultural almsgiving fee is only 4.36 yuan per person and the agricultural insurance indemnity is only 0.37 yuan per person. Thus, the present agricultural insurance is totally unable to compensate the loss caused by agricultural disasters.

2. The Mode of Unitary Insurance Institution: Root of the Plight of Agricultural Insurance Institution

2.1 Overview of Unitary Agricultural Insurance Institution

Institutional mode refers to a set of rules formed through a long period of practice, with distinctive features and relative stability. Agricultural insurance has been practiced in different countries. Since these practices were made in different countries with different social economic institutions and different policies and objectives, different institutional modes came into being (Note 4). This essay suggests that the present Chinese mode of agricultural insurance institution may be summarized as the mode of unitary insurance institution which means a set of agricultural insurance rules for a long time led by the government and run commercially in accordance with the type of agricultural insurance instead of the loss caused by agricultural insurance disasters. The mode of unitary insurance institution has two distinctive features:

The first feature is to regard all losses caused by insurance disasters to be of the same nature. Usually, for different agricultural insurance losses and different occurrence frequencies (mainly ordinary agricultural disaster and agricultural catastrophe), premium calculation and government support are different, which is in accordance with the insurance principle that profit should be pursued and loss be eluded. However, in the present model of agricultural insurance institution the same method (Note 5) of premium calculation and management is adopted, which is contradictory to the fundamental principle of insurance.

The second feature is the unitary participation of the government. In the period of planned economy the government decided whether the agricultural insurance is carried out or ceased. When the reform of market economic system is started, the government began to pay more and more attention to agricultural insurance and conduct one after another adjustment and innovation in agricultural insurance institution. Nevertheless, during the change of Chinese agricultural insurance institution, the state did not play the principal role made possible by the institution. Since there was no relative law as guarantee in the experimental spots of agricultural insurance, policies made by the local governments have great randomness and instability. More importantly, the government's present participation into agricultural insurance is unitary. The principal modes are government support and financial subsidy. Different tiers of government hold different attitudes towards agricultural insurance, and only in a few areas where importance to agricultural insurance is attached, the government cooperates with commercial insurance companies, offers policy benefits, subsidizes premium and management fee, and derates sales tax. But on the whole, the participation of the state and local governments is rather unitary. In fact, the greatest risk of agricultural insurance lies in agricultural disaster risks, especially agricultural catastrophe risks. Though ordinary agricultural disasters may be tackled, once there is agricultural catastrophe the agricultural insurance company cannot cope by itself. The present government support is insufficient to disperse and transfer agricultural disaster risks, and its support and subsidy for agricultural catastrophe is especially insufficient. Besides, the mechanism is underdeveloped. All this is the biggest problem of agricultural insurance.

2.2 Historical Reason for Unitary Agricultural Insurance Institution

In North's view, there exists a mechanism of reward-increasing and self-strengthening, namely, path dependence. Due to this mechanism, once institutional change takes a certain path, its decided direction will be strengthened in future development. He points out that the decision people made in the past determines the possible decision they are about to make now. The profound reason for the formation of path dependence is the interest factor. A vested interest group which has gained interest from the former institution co-exists and co-prospers with it. They try to solidify and maintain the old institution and baffle further reformation even if the new institution is more efficient than the old one. Once path dependence is formed, institutional change might become simple patching up.

In the past fifty years or so, agricultural insurance has undergone several changes but has never found its way out of the institutional plight (Note 6). It may be said that the institutional change of agricultural insurance has not broken through the framework of initial choice, but has always been evolving within this framework. This shows that the institutional change of agricultural insurance has strong path dependence. And the existence of path dependence in the institutional change of agricultural insurance has its own reasons. On the one hand, institutional change within the former framework not only saves initial setup cost, reduces the friction cost in execution and accelerates the change, but also avoids too much interest loss in the vested interest group and thus being more acceptable for local governments. On the other hand, as a result of the long-time government-leading compulsory change and administrative mandatory management, the initiative of the base reform of agricultural insurance is insufficient, and leaders and employees of agricultural insurance who are used to obeying higher-up direction and red heading documents lack the subjective initiative to think actively and to innovate. Therefore, in the process of reform the phenomenon of making short shrift of things makes the reform measures powerless. All these factors strengthen path dependence and makes agricultural insurance unable to find its way out of the institutional plight and break through the existing institutional mode.

2.3 Problems of the Mode of Unitary Insurance Institution

In the mode of unitary insurance institution there exist a lot of problems. This essay ascribes the biggest problem to a

lack of a supportive and protective system for agricultural catastrophe.

China is one of the countries where agricultural natural disasters occur frequently. Due to the diversity of disasters, the large area of disaster-affliction and the high percentage of disaster forming, natural disasters severely threatens the development of Chinese rural economy and harms the regular production and living of farmers (see Table 1).

Insert Table 1 here

At present one of the bottlenecks that baffle the development of agricultural insurance is the lack of a supportive and protective system for agricultural catastrophe in China, which is a principal distinction from the agricultural insurance in developed countries. For instance, the United States offers a certain percentage of reinsurance as guarantee, and France establishes a national agricultural insurance special fund which bears the loss caused by natural disasters except hails. Since there is no supportive and protective system for catastrophe, in China the catastrophic loss is born singly and completely by insurance companies and great risks gather around the management body itself, which make the loss ratio stay high, and the management body's enthusiasm and ability to maintain business are greatly affected. The government's ability to support agricultural insurance is rather limited. Besides, in the present institutional mode, the government's support for agricultural insurance is superficial and extensive. In this way, the utility maximization of government insurance resources cannot be realized.

3. The Mode of Dual Agricultural Insurance Institution: Way Out of Agricultural Insurance Institution

The development mode of agricultural insurance has always been the focus of the domestic discussion in China during which a lot of development modes are proposed. Actually a series of practice and exploration have also been done. But how on earth should we develop agricultural insurance? Because of the complexity and particularity of Chinese agricultural insurance, its agricultural insurance policy has never been decided.

It is clearly pointed out in "Several Suggestions on the Reform and Development of Insurance Industry by the State Council" promulgated in March, 2006 that Chinese agricultural insurance should adopt a synthesized development mode with experimental spots actively and steadily promoted and multiple development forms and channels. Seen from the entire framework, the function of national agricultural industry policies, finance and revenue policies and relative insurance policies should be completely brought into play, an agricultural insurance institution with multiple systems, multiple supportive channels and multiple management bodies should be established, so as to fit the situation of Chinese agricultural insurance development and meet the farmers' need to participate into insurance.

It is pointed out in the "Suggestions" that experiences gained by experimental spots should be carefully summarized, a supportive policy should be studied and made, so as to explore an agricultural insurance development mode suitable for the situation in China, make agricultural insurance an innovation of agriculture support and part of the supportive and protective system for agriculture. The enthusiasm of the central government, the local governments, insurance companies, leading corporations, farmers, etc. should be aroused, the agricultural departments' function of promoting agricultural insurance legislation, guiding farmers to insure, coordinating relations and stimulating agricultural insurance development should be brought into play, so as to enlarge the coverage of agricultural insurance, and establish step by step an agricultural insurance system with multiple management forms and multiple supportive channels.

Under the guidance of above thoughts, this essay proposes that from now on a mode of dual agricultural insurance institution should be established and perfected step by step in China.

3.1 The Mode of Dual Agricultural Insurance Institution

At present the mode of unitary insurance institution is carried out in Chinese agricultural insurance, a commercial management mode under policy support is put into all practice, without the categorization of agricultural insurance into ordinary disaster insurance and agricultural catastrophe insurance. In the future the basic thought of constructing a mode of Chinese agricultural insurance institution is to break the present unitary agricultural insurance system, establish and perfect the dual agricultural insurance system step by step. The mode of dual agricultural insurance institution is to separate agricultural catastrophe insurance from the present insurance system, and to manage agricultural catastrophe insurance and ordinary agricultural insurance separately (see figure 3).

Agricultural catastrophe insurance and ordinary agricultural insurance is divided according to the loss of the insurance object in an insurance period. If the loss of the insurance object is above 50%, it is called agricultural catastrophe insurance; otherwise, it is called ordinary agricultural insurance(Note 8).

Ordinary agricultural insurance may adopt the policy commercial management mode. Multiple agricultural insurance bodies should be established according to the present Chinese policies for agricultural insurance development, so as to form an agricultural insurance market with commercial insurance, cooperative insurance and mutual insurance complementing each other. For this, the government may carry on with the existing agricultural insurance policies and support policies.

Agricultural catastrophe insurance is supposed to be run directly by the government and the basic thought is to adopt the policy management mode. The initial concept is to set up policy agricultural catastrophe insurance companies and adopt the management mode of state-holding companies. The main business is agricultural catastrophe insurance, with three tiers of branches: province (autonomous regions and municipality cities), prefecturaland municipal cities, and counties. Thus, policy agricultural catastrophe insurance companies are independent legal entities engaged in policy agricultural catastrophe insurance, carrying out first grade corporation system, setting three tiers of branches according to the administrative division, self-reliant and managed vertically. Administratively, they are subjected to the State Council and directly managed by the State Committee of Capital. Specifically, their organizational system may be divided into four tiers. Their primary duty is to carry out the national industrial policies, and based on the corporation's development strategies use the capital they hold to do business independently and assume sole responsibility for their profits or losses. They also take the responsibility of maintaining and increasing the state-holding capital according to the objective formulated by the board of directions (see Figure 3).

Insert Figure 3 here

3.2 Functions of the Mode of Dual Agricultural Insurance Institution

To establish and perfect the mode of dual agricultural insurance institution has the following functions:

3.2.1 Effective Reduction of the Risk of Agriculture Management

According to the standard which determines agricultural catastrophe, that is, the loss of one agricultural disaster is above 50%, the losses of Chinese agricultural disaster and agricultural catastrophe from 1996 to 2004 are analyzed, and the result shows that agricultural catastrophic loss takes the majority of agricultural disaster losses. In 1998 and 2003 agricultural catastrophic loss takes 87% and 81% of agricultural disaster losses respectively. Thus, as long as the problem of agricultural catastrophic loss is solved, it is much easier to solve the problem of agricultural management risks.

Like Chinese agriculture, rural areas and farmers that encounter countless difficulties, Chinese agricultural insurance was born with a "disastrous gene" because most types of agricultural insurance (especially planting insurance) face greater catastrophic risks than the types of non-agricultural insurance, and at present the insurance approach to diffusion of catastrophic risks is still in need.

Insert Figure 4 here

3.2.2 Effective Reduction of the Risk of Agricultural Insurance Management

The analysis of agricultural insurance loss and agricultural catastrophe insurance loss from 1982 to 2004 reveals that the latter takes the most part of the former. In the years of 1989 and 1996, the latter takes 90%. Therefore, once agricultural catastrophe insurance loss is solved, so will be the agricultural insurance loss. The agricultural insurance in agricultural insurance companies will stop running at a loss, and their risk will be effectively reduced.

3.2.3 A Better Solution to the Institutional Problem of Insufficient Supply of Agricultural Insurance

The insufficient policy supply of agricultural insurance is the fundamental reason of the inefficiency of agricultural insurance in China at present (Feng Wenli, 2004). To make up for loss of agricultural insurance market supply main body, the policy agricultural insurance supply should be effectively increased, for its development solve the problem of insufficient institutional agricultural insurance supply.

On the one hand, policy agricultural catastrophe insurance can effectively defuse the main body risk in agricultural insurance, and government can bear catastrophe risk through market. In this way, agricultural insurance management risk of agricultural insurance companies can be effectively reduced, the enthusiasm of agricultural insurance management of agricultural insurance companies enhanced, and agricultural insurance market supply increased.

On the other hand, government can centralize the limited insurance resources to develop with high priority policy agricultural catastrophe insurance and make the most of the limited resources.

3.2.4 A Better Solution to the Problem of Insufficient Demand for Agricultural Insurance

Usually, as cost, input price and technology change, supply will change and the supply curve will change, too. The social cost of agricultural insurance products is lower than the private cost, and its exteriority benefits on-lookers, which makes input and output insufficient. If the government offers some subsidy for agricultural production, the supply curve will move downward or the demand curve will move upward (This depends on the objects of compensation, that is, whether the insurer or the insured should be compensated.). The motion quantity equals the compensation quantity. Thus, the exteriority of agricultural insurance products becomes interiorized and the balance between supply and demand in agricultural insurance market is finally achieved. Therefore, theoretically speaking, the development of Chinese agricultural insurance relies on government support.

The fundamental reason of insufficient need of agricultural insurance is that agricultural insurance costs much and the

premium rate is high while farmers' purchasing power is small. To solve this problem, we should first increase the income of farmers. But due to the limited agricultural investment and the management of farmers, increasing farmers' income to a great extent is impossible. Second, the premium rate of agricultural insurance is lowered. However, under present circumstances, the high risk of agriculture and the high cost of insurance companies are unchangeable, and agricultural insurance subsidy is limited. Therefore, agricultural catastrophe insurance should be developed and insurance subsidy of government agricultural catastrophe insurance increased to enable farmers to enjoy agricultural insurance with almost zero cost. This may solve the conflict between the high cost of agricultural insurance and high premium rate and the small purchasing power of farmers. This may also encourage the richer farmers to buy general disaster insurance and other country insurance, and enlarge the country insurance market.

3.2.5 Effective Guarantee for Farmers' Basic Living and Production

"One disaster takes all away," "Three years are needed to make up for one disaster," "Wealth accumulated in ten years can be snatched away in one disaster" – all these are true description of disaster-stricken farmers. Farmers' ability to fight against disasters, especially catastrophes, is limited. A common family is very fragile in front of disasters. It can hardly recover from a catastrophe.

If agricultural catastrophe covering a large scope is offered to farmers, so that they can get economic compensation in catastrophe, go on with their basic life, and recover agricultural production, this would be of great strategic significance for country stability, economic development, and construction of new socialism rural area.

4. Step-by-step Adoption of the Mode of Dual Agricultural Insurance Institution

The creation of institutional change basically depends on self-designed and self-constructed institutions. Institutional arrangement and structure of this kind has no precedent, so the argumentation and analysis of institutional change is mainly based on the prevision of the theory. Since no institutional performance of other places can be referred to, institutional change may result in a set of institution of high efficiency or in a lack of efficiency. Following is the characteristics of institutional change: 1. high preliminary cost spent on exploration, research, design and creation; 2. low credit in the preliminary stage; 3. high risk; 4. friction cost; 5. diminishing impetus of change.

The ultimate aim of agricultural insurance institution is to make potential interest out of minimum cost, so as to reach a balancing point in agricultural insurance institution. However, the establishment of an insurance institution is restricted by cost, which includes money used in designing, organizing and carrying out a new institution, cleaning old institution, eliminating resistant force of the change, lost resulting from institutional change as well as random cost.

Based on the above guiding principle, in designing the mode of dual agricultural insurance institution, the existing agricultural insurance institution is used for general agricultural disaster, in order to reduce the cost of institutional change. In this way, agricultural catastrophe insurance institution is established to ensure agricultural insurance institution is balanced and efficient.

On the other hand, in designing the mode of dual agricultural insurance institution, there should be variations in specific arrangements in China, if we take into consideration social, political and economic development, situation of financial and insurance market, capability to bear insurance, management level of insurance skills and risks, as well as the principle of step-by-step in different historical and developmental stages. (General insurance can follow the existing agricultural insurance institution, while discussed here is agricultural catastrophe insurance.)

4.1 The Mode of Short-term Policy Agricultural Catastrophe Insurance Institution

In the recent future, agriculture-related insurance institution and organization are unable to carry out agricultural catastrophe insurance, due to problems they have in terms of capacity to bear insurance, insurance skills and agricultural risk management. Thus the mode of policy agricultural insurance institution should be hosted by the government and managed by government organizations. The specific management mode (see Figure5) is that government should sponsor policy agricultural catastrophe insurance company (stock system may be applied), that nation-province (city)-county (city) three level catastrophe insurance institution should be set up, with counties (cities) directly manage agricultural catastrophe insurance business. At the same time, it is also acceptable to relegate part of the agricultural catastrophe business to commercial agricultural insurance company, agricultural insurance cooperation and agricultural mutual insurance company, earning more market share with some commission.

Insert Figure 5 here

4.2 The Mode of Medium-term Policy Agricultural Catastrophe Insurance Institution

On the basis of development and perfection of the money market and insurance market in China, some insurance organization and institute (mainly commercial insurance company and foreign capital insurance agent) can develop agricultural catastrophe insurance business, that is, agricultural insurance cooperative and agricultural mutual insurance company can surrogate some agricultural catastrophe insurance products from national agricultural catastrophe insurance company, commercial insurance company and foreign capital insurance agent, when agricultural insurance

skills are ripe, risk management is available and government finance and revenue support is accessible (see Figure 6). This can improve agricultural catastrophe insurance market, strengthen the market supplier of agricultural catastrophe insurance and enhance the development of agricultural catastrophe in China.

4.3 The Mode of Long-term Policy Agricultural Catastrophe Insurance Institution

In the long run, agricultural catastrophe insurance institution in China should adjust all the social resources, and various kinds of organization and institute to develop agricultural catastrophe insurance business. A comparatively complete agricultural catastrophe insurance system is composed by national policy agricultural catastrophe insurance company, commercial insurance company, foreign capital insurance company, agricultural insurance cooperative and agricultural mutual insurance company (see Figure 7). This is the ideal mode of agricultural catastrophe insurance institution.

Insert Figure 6 here

Insert Figure 7 here

5. Conclusion and Prospect

In the past 50 years, agricultural insurance institution was changed many times, but never found its way out of the plight. Its changes never broke through the framework of initial choice, always evolving within the framework of unitary institution. From now on, I suggest that dual agricultural insurance institution should be established and improved in China, that is, general agricultural disaster should follow the existing agricultural insurance institution and organization structure, while agricultural catastrophe should be guided by the government to establish and improve agricultural catastrophe insurance system in a step-by-step way. So form the new mode of agricultural insurance institution in China. Naturally, in the process of institutional change, the cost of it is inevitable. At the same time, the exploration of products of agricultural insurance, ratemaking, risk diversification, and application of technology transfer are all problems that are going to appear and to be solved in future.

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Notes

Note 1. From 1934 to 1949 there were rural mutual agricultural insurance and an insurance in which the National Government and commercial insurance companies participated. Both of them ended in loss. In 1950 New China began to try on agricultural insurance. After a process of ceasing and renewing, it quit in 1958 for political reasons (Zhang, Yuehua, Gu, Haiying and Shi, Qinghua, 2006).

Note 2. Data source: Insurance Almanac of China.

Note 3. Data Source: Almanac of Chinese Agriculture Statistics and "Report on Chinese Civil Affairs Development from 1996 to 2005."

Note 4. Scholars represented by Tuo Guozhu divide the institutional modes of world agricultural insurance into five types: the America-Canada Mode, a government-leading mode; the Japanese Mode, a cooperative and mutual mode under government support; the former Soviet Union Mode, a government-monopoly mode; the West European Mode, a people-running and government-aiding mode; the mode of Asian developing countries, a mode with government selective assistance.

Note 5. Though the calculation methods of different agricultural insurance products have some difference, on the whole the difference is very slight.

Note 6. The theoretic circle discussed the failure of agricultural insurance market. Li Jun (1996), Tuo Guozhu (2002), Feng Wenli (2004), etc. think that the dual exteriority of agricultural insurance causes the failure of agricultural insurance market. To Zhang Yuehua (2005), etc., the reason for market failure is that the farmers' risk preference tends to be neutral when their income is low. They also think the concept of exteriority is not precise in the theory of market failure. On the macrocosmic level agricultural insurance has typical exteriority, but on the macroscopical level it is not enough to cause market failure. And Sun Xiuqing (2004) think the plight of Chinese agricultural insurance development lies in the contradiction between the policy objective of agricultural insurance and the commercial management objective of insurance companies.

Note 7. Data source: based on "Report on Chinese Civil Affairs Development Statistics from 2001 to 2005" by the Ministry of Civil Affairs.

Note 8. This is presently the internationally popular (such as the United States) division standard for ordinary agricultural disaster and agricultural catastrophe.

Table 1. Statistics of the disaster situation in China from 2001 to 2005(Note 7)

Disaster situation index / Year	Population afflicted(ten thousands)	Death toll	Population transferred and nestled for emergency(ten thousands)	Area of crop afflicted (one thousand hectare)	Zero harvest area(one thousand hectare)	Building collapse (ten thousands of rooms)	Direct economic loss (one hundred million yuan)
2001	37255.9	2538	211.1	52150.0	8215.0	92.2	1942.2
2002	42798.0	2384	471.8	45214.0	6433.0	189.5	1637.2
2003	49745.9	2259	707.3	54386.3	8546.4	343.0	1884.2
2004	33920.6	2250	563.3	37106.0	4360.0	155.0	1602.3
2005	37255.9	2538	211.1	52150.0	8215.0	92.2	1942.2
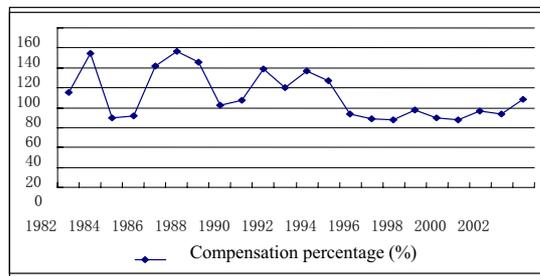
Figure 1. Agricultural compensation by the People's Company of China (unit: %) (Note 2)
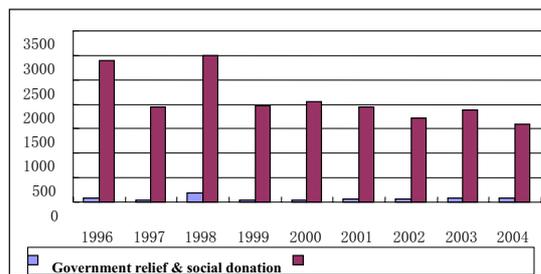
Figure 2. Direct economic loss caused by disasters and government
relief & social donation (unit: 100 million yuan)(Note 3)
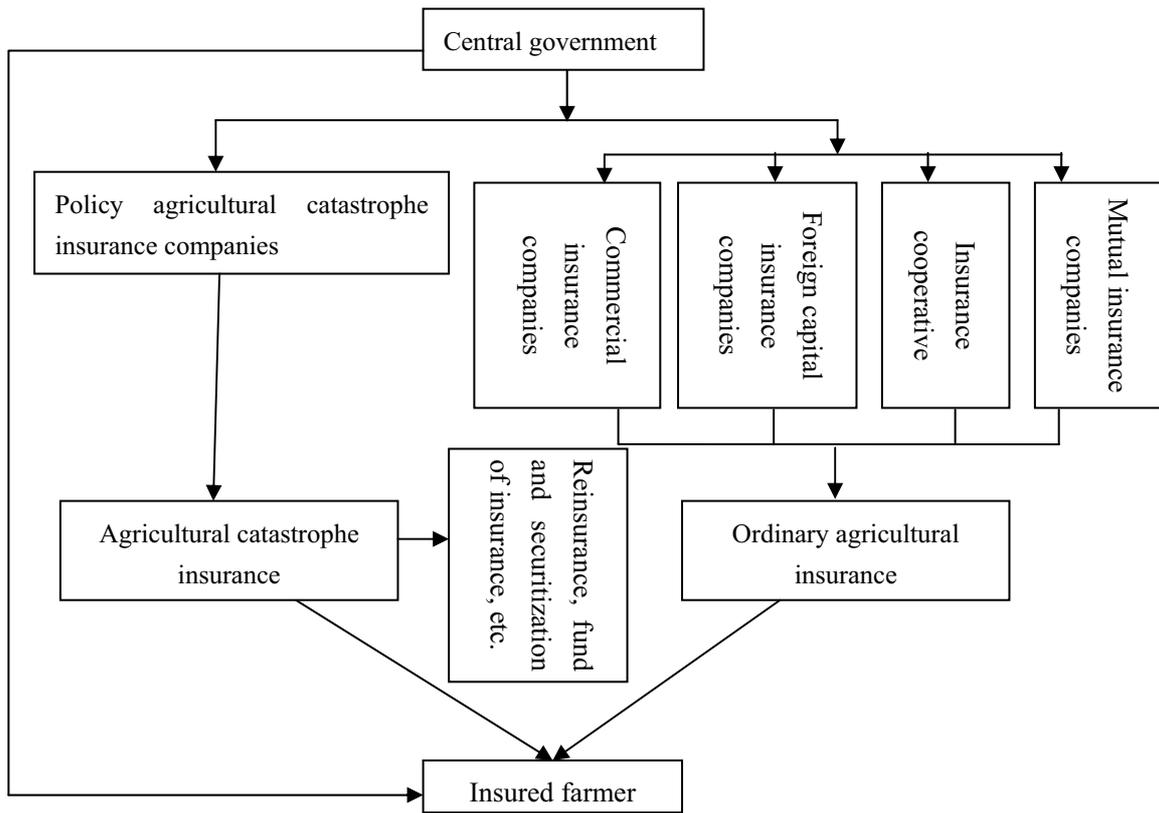
Figure 3. Conception of the mode of dual agricultural insurance institution in China

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┌─────────────────────────┐
│ Agricultural catastrophe │
│  insurance corporation   │
└─────────────────────────┘
         │
         ▼
    ┌────────────────────────┐
    │ Provincial   (municipality,│
    │ provincial city) branch │
    └────────────────────────┘
            │
            ▼
        ┌─────────────┐
        │ City branch │
        └─────────────┘
               │
               ▼
           ┌───────────────┐                      ┌──────────────────┐
           │ County branch │ ───────────────────▶ │ Sales department │
           └───────────────┘                      └──────────────────┘
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Commercial insurance companies

Foreign capital insurance companies

Agricultural insurance cooperative

Agricultural mutual insurance companies

Entrustment

Insured farmer
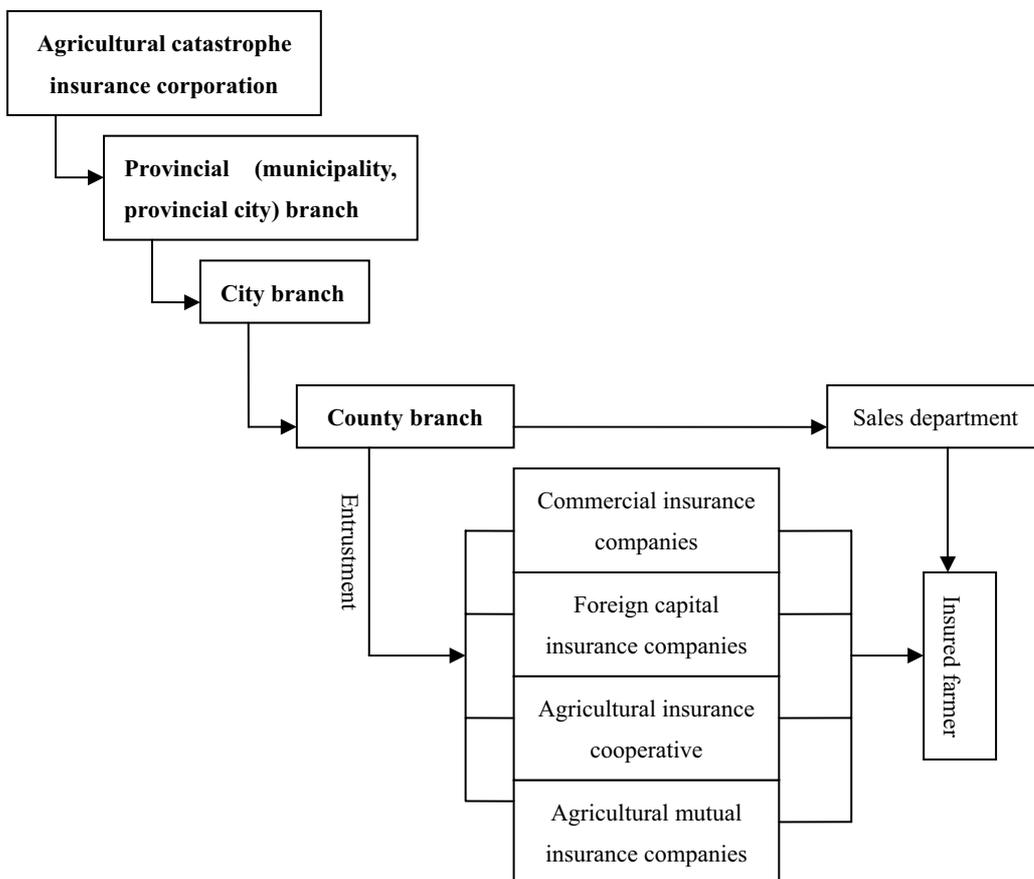
Figure 4. Mode of operation of agricultural catastrophe insurance corporation
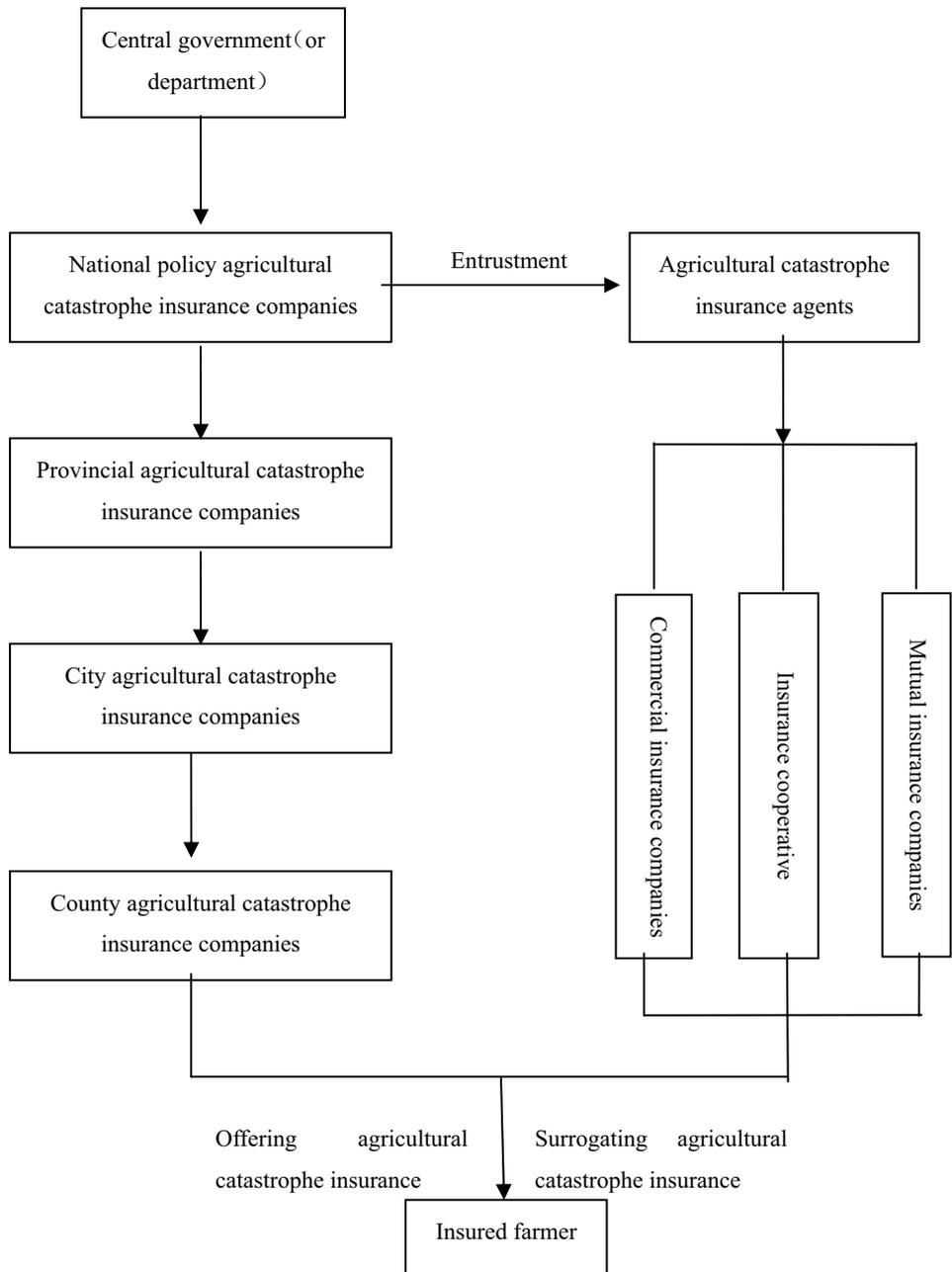
Figure 5. The mode of short-term policy agricultural catastrophe insurance institution
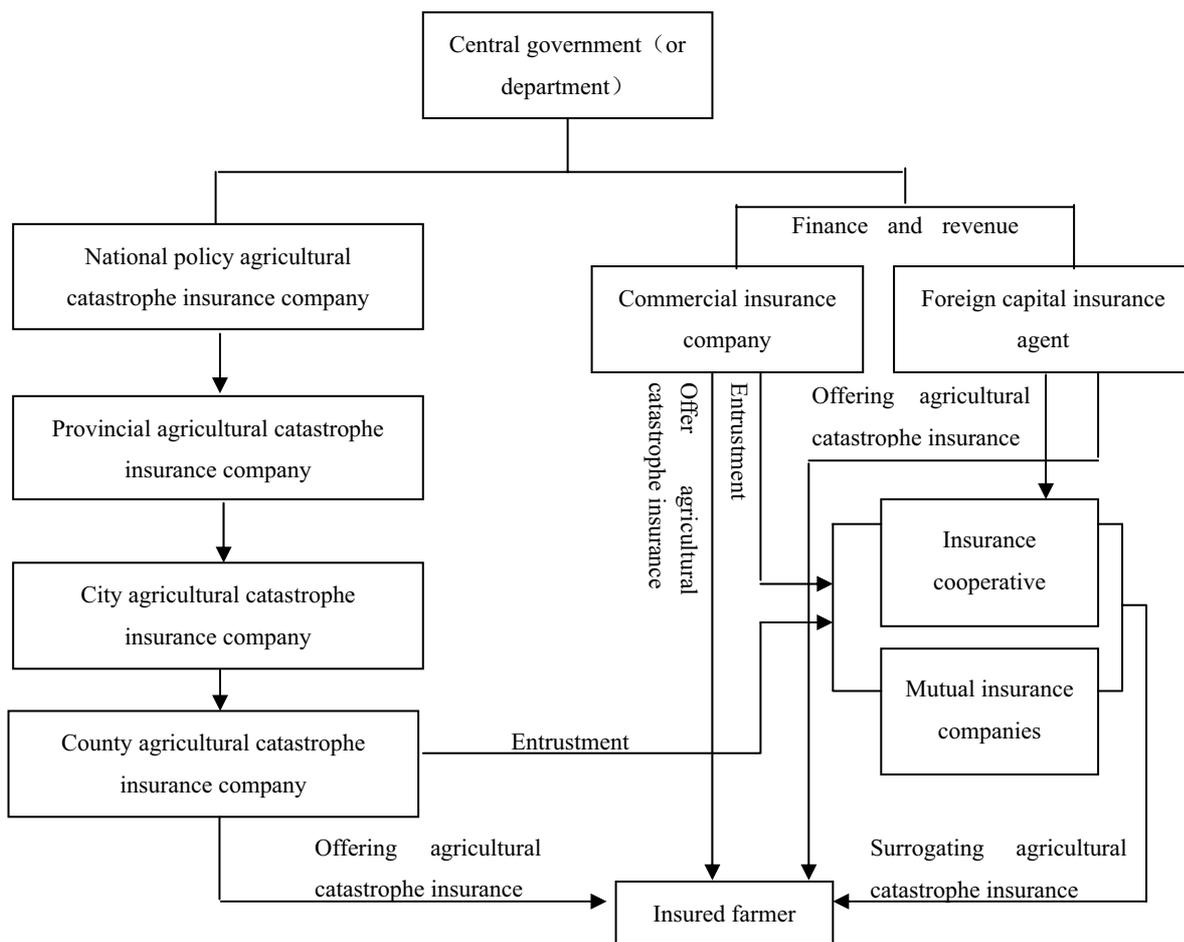
Figure 6. The mode of medium-term policy agricultural catastrophe insurance institution
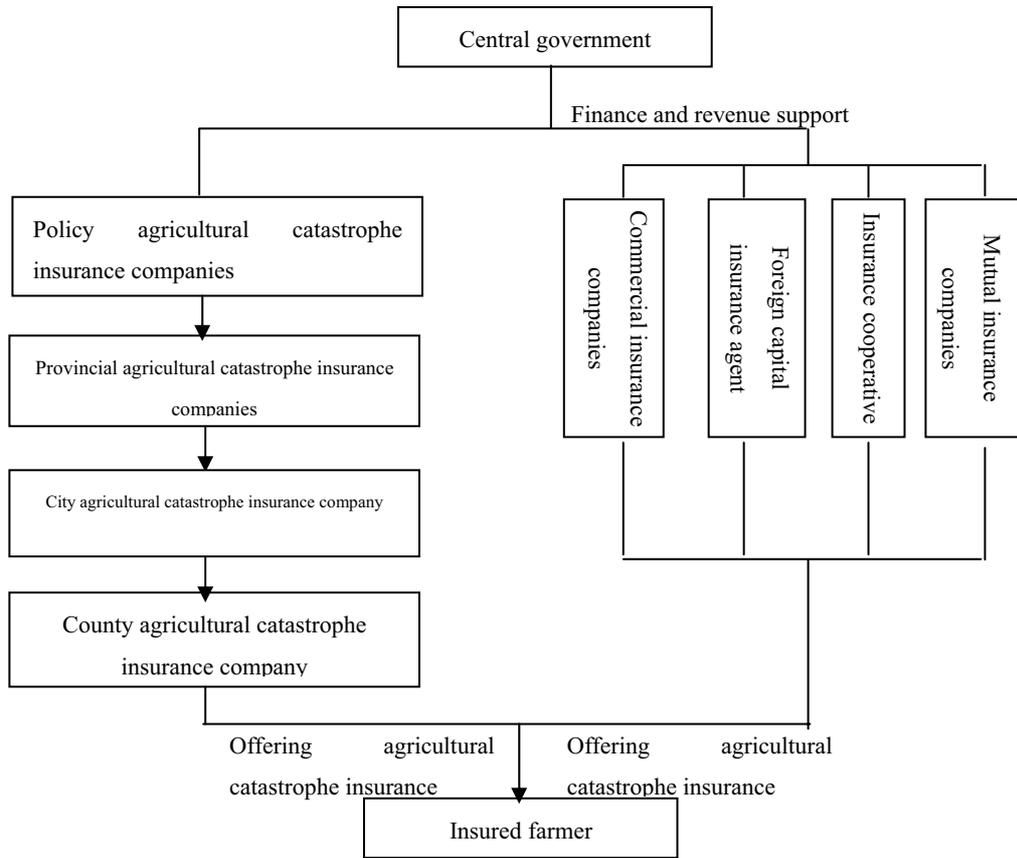
Figure 7. The mode of long-term policy agricultural catastrophe insurance institution

Organizational Justice Perceptions as Predictor of Job Satisfaction and Organization Commitment

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Abstract

The present study explored the relationship between perceived organizational justice, job satisfaction and organization commitment using a field sample. Sample for the present study consisted of 128 employees working in medical college. Regression analysis of the data obtained indicated that distributive justice was significantly related to job satisfaction whereas procedural justice was not found to be related significantly with job satisfaction. Also both distributive justice and procedural justice were found to be significantly related to organization commitment. Theoretical and practical implications of the results are discussed.

Keywords: Perceived organizational justice, Job satisfaction and organization commitment

1. Introduction

The study of organizational justice perceptions has received great attention from the researchers and scholars and it has become frequently researched topics in the field of industrial-organizational psychology, human resource management and organization behavior (Cropanzano & Greenberg, 1997). Over the last 30 years, organizational justice has been researched extensively in social psychology, specifically in organizational contexts by psychologists and management researchers, among others interested in the construct (Blakely, Andrews & Moorman, 2005; Moorman, 1991; Trevino & Weaver, 2001). Perceptions of organizational justice constitute an important heuristic in organizational decision-making, as research relates it to job satisfaction, turnover, leadership, organizational citizenship, organizational commitment, trust, customer satisfaction, job performance, employee theft, role breadth, alienation, and leader-member exchange (Cohen Charash & Spector, 2001). Kim (2009) found that employees who perceived that they were treated fairly by their company tended to develop and maintain communal relationships with the company. Also, when employees felt that they were treated fairly by their company, they were likely to hold more commitment, trust, satisfaction, and control mutuality than when they perceived that they were treated unfairly.

The research on organization justice perceptions which focuses on the role of fairness in the work place have shown that organizational justice perceptions strongly effect the attitude of the workers such as job satisfaction, turnover intentions and organization commitment and also workplace behavior such as absenteeism and organizational citizenship behavior (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). In addition, research has also demonstrated the linkages between perceived organizational justice and individual work performance (Colquitt et al., 2001, Earley & Lind, 1987). Perceived organizational justice is found to be an important antecedent of organizational citizenship behavior (Bakhshi & Kumar, 2009). Although the associations between justice perceptions and various work outcomes are well established in western literature a very few studies has examined the relationship of justice perceptions with work attitude and work behavior in Indian culture. A number of studies showed that culture do influence the justice perceptions of the employees and culture is an important determinant of what impact does the justice perception will have on various work outcomes. Tyler and his colleagues (Lind & Tyler, 1988; Tyler, Boeckmann, Smith, & Huo, 1997) proposed that procedural justice concerns are ubiquitous across diverse societal and cultural settings. Cross-cultural research on procedural justice has recently begun (Brockner, Chen, Mannix, Leung, & Skarlicki 2000; Lind & Earley, 1992; Lind, Tyler, & Huo, 1997). A first question addressed by cross-cultural procedural justice researchers is whether non-Westerners (i.e., collectivists) care about procedural justice issues as well (e.g., LaTour, Houlden, Walker, & Thibaut, 1976). Similarly, Sugawara and Huo (1994) found that the Japanese show a strong concern about procedural justice in conflict resolutions. White, Tansky, and Baik (1995) reported that Korean subjects reveal concerns about procedural justice, although their concerns are lower than those of American subjects. The present study aims to find the relationship between justice perceptions, job satisfaction an organization commitment and attempt to fill that research gap. We provide a brief review of the conceptualization of the organizational justice construct before reviewing the specific research questions explored in this article.

1.1 Perceived organizational justice

When employees react to the way they are treated at work, their motivation to respond cannot be understood adequately without taking into account perceived fairness of the outcomes and the procedure used to reach that outcomes (Folger & Konovsky, 1989; Greenberg, 1986). The organizational justice construct has been partitioned into at least three factors: distributive justice, procedural justice, and interactional justice. Adams (1965) conceptualized fairness by stating that employees determine whether they have been treated fairly at work by comparing their own payoff ratio of outcomes (such as pay or status) to inputs (such as effort or time) to the ratio of their co-workers. This is called distributive justice, and it presents employees' perceptions about the fairness of managerial decisions relative to the distribution of outcomes such as pay, promotions, etc (Folger & Konovsky, 1989). In contrast, procedural justice focuses on the fairness of the manner in which the decision-making process is conducted (Folger & Konovsky, 1989). In other words, the focus shifts from what was decided to how the decision was made (Cropanzano & Folger, 1991). As a third concept, interactional justice reflects the quality of interpersonal treatment during the implementation of formal procedures of decisions (Bies & Moag 1986).

1.1.1 Distributive justice

Before 1975, the study of justice was primarily concerned with distributive justice. Much of this research was derived from initial work conducted by Adams (1965), who used a social exchange theory framework to evaluate fairness. According to Adams, what people were concerned about was not the absolute level of outcomes per se but whether those outcomes were fair.

Whereas Adams's theory advocated the use of an equity rule to determine fairness, several other allocation rules have also been identified, such as equality and need (e.g., Leventhal, 1976). Studies have shown that different contexts (e.g., work vs. family), different organizational goals (e.g., group harmony vs. productivity), and different personal motives (e.g., self-interest motives vs. altruistic motives) can activate the use or primacy of certain allocation rules (Deutsch, 1975). Nevertheless, all of the allocation standards have as their goal the achievement of distributive justice; they merely attempt to create it through the use of different rules.

1.1.2 Procedural justice

Thibaut and Walker's (1975) research on individuals' reactions to dispute resolution procedures led to the development of procedural justice theory, which is concerned with judgments about the process or means by which allocation decisions are made. Although Thibaut and Walker (1975) introduced the concept of procedural justice, their work focused primarily on disputant reactions to legal procedures. Leventhal and colleagues can be credited for extending the notion of procedural justice into nonlegal contexts such as organizational settings (Leventhal, 1980; Leventhal et al., 1980). In doing so, Leventhal and colleagues also broadened the list of determinants of procedural justice far beyond the concept of process control. Leventhal's theory of procedural justice judgments focused on six criteria that a procedure should meet if it is to be perceived as fair. Procedures should (a) be applied consistently across people and across time, (b) be free from bias (e.g., ensuring that a third party has no vested interest in a particular settlement), (c) ensure that accurate information is collected and used in making decisions, (d) have some mechanism to correct flawed

or inaccurate decisions, (e) conform to personal or prevailing standards of ethics or morality, and (f) ensure that the opinions of various groups affected by the decision have been taken into account.

1.1.3 Interactional Justice

Bies and Moag (1986) introduced the most recent advance in the justice literature by focusing attention on the importance of the quality of the interpersonal treatment people receive when procedures are implemented. Bies and Moag (1986) referred to these aspects of justice as "interactional justice." More recently, interactional justice has come to be seen as consisting of two specific types of interpersonal treatment (e.g., Greenberg, 1990a, 1993b). The first, labeled interpersonal justice, reflects the degree to which people are treated with politeness, dignity, and respect by authorities or third parties involved in executing procedures or determining outcomes. The second, labeled informational justice, focuses on the explanations provided to people that convey information about why procedures were used in a certain way or why outcomes were distributed in a certain fashion.

Justice perceptions also have been linked to important outcome variables (Dailey & Kirk, 1992; Folger & Konovsky, 1989; Martin & Bennett, 1996; McFarlin & Sweeney, 1992). For instance, perceptions of procedural justice are negatively related to intentions to quit (Dailey & Kirk, 1992), significantly correlate with organizational commitment (Folger & Konovsky, 1989; Martin & Bennett, 1996), and produce high subordinates' evaluation of supervisors (McFarlin & Sweeney, 1992). In other words, if employees perceive that the decision making process is fair, they are less likely to form an intention to quit. On the other hand, distributive justice perceptions are associated with pay raise satisfaction (Folger & Konovsky, 1989), and tend to be a strong predictor of job satisfaction (Martin & Bennett, 1996; McFarlin & Sweeney, 1992). Greenberg (1990) also reports that organizational justice, which refers to people's perceptions of the fairness of treatment received from organizations, is important as a basic requirement for the effective functioning of organizations.

1.2 Job Satisfaction

Job satisfaction or Employee Satisfaction (also referred to as morale) is one of the most used variables in Organizational Behavior. It is an employee's attitudinal response to his or her organization. As an attitude, job satisfaction is conceptualized as consisting of evaluative, cognitive and affective components.

The Evaluative Component- An individual's overall response to the employing organization is summarized in the evaluative component. It represents dislike vs. like for the organization.

The Cognitive Component- An individual's perceptions, opinion, beliefs and expectations regarding the organization are the focus of his or her cognitions. Employees hold cognitions about each of the four major inducement systems. Cognitions in which the individual perceives that his or her expectations have been met generally lead to positive evaluations. Additionally, positive evaluations are more likely when cognitions (expectations) support a positive and secure future with the organization.

The Affective Component- This represents the feeling evoked by the organization. Does thinking about and association with the organization evoke pleasurable or uncomfortable feelings; feelings of anger or joy; feelings of security or stress; feelings of affirmation or invalidation? In general, positive affect results from information, feedback, and situations that affirms or reinforces the individual's self worth and self-concept, while negative affect is evoked by invalidating situations. Self worth is validated when individuals feel accepted as values members of the organization and their competencies and core values are affirmed. When individuals are in a positive affect state while working, they tend to evaluate the organization positively.

1.3 Organization commitment

Organizational commitment has been identified as a critical factor in understanding and explaining the work-related behavior of employees in organizations. Most definitions of organizational commitment describe the construct in terms of the extent to which an employee identifies with and is involved with an organization (Curry, Wakefield, Price, & Mueller, 1986). For example, Steer (1977) defined organizational commitment as the relative strength of an individual's identification with and involvement in a particular organization. Mowday et al. (1979) defined organizational commitment as an affective response which moves beyond passive loyalty to an organization. Porter, Steers, Mowday, and Boulian (1974) identified three related factors of organizational commitment: (1) a strong belief in an organization's goals and values, (2) a willingness to exert considerable effort for the organization, and (3) a strong desire to maintain membership in the organization. Meyer and Allen (1991) argued that the psychological states reflected in these different definitions of organizational commitment are not mutually exclusive. They referred to these states as components of organizational commitment. These include affective commitment (emotional attachment), continuance commitment (cost-based), and normative commitment (obligation). Mathieu and Zajac (1990) noted that the various definitions and measures share a common theme in that organizational commitment is considered to be a bond or linking of the individual to the organization.

2. Hypothesized relationship between perceived organizational justice; organizational commitment and job satisfaction

Many studies also ask about employees' satisfaction with their jobs in general. McFarlin and Sweeney (1992) showed that distributive justice was a more powerful predictor of job satisfaction than was procedural justice. Distributive justice, however, is a better predictor of personal outcomes such as pay satisfaction. However, this does not seem to fit the two-factor theory argument that procedural justice predicts system-referenced outcomes, whereas distributive justice predicts person-referenced outcomes. In addition, Masterson, Lewis, Goldman & Taylor (2000) showed procedural justice to be a stronger predictor of job satisfaction than interactional justice, although both had significant independent effects. Organizational commitment represents a global, systemic reaction that people have to the company for which they work. Perceived organization justice is an important predictor of job satisfaction as well as organization commitment. One reason for this could be that use of fair procedures in decision making provides evidence of a genuine caring and concern on the part of the organization for the well being of employees (Lind & Tyler, 1988). This in turn motivates the employees to continue their association with their current organization. Thus in this research it was hypothesized that if the employees perceived both distributive justice and procedural justice to be high they would be more motivated to continue their association with their current institutions and would show higher job satisfaction level.

Hypothesis 1: Distributive justice will positively relate to job satisfaction.

Hypothesis 2: Procedural justice will positively relate to job satisfaction.

Hypothesis 3: Distributive justice will positively relate to organizational commitment.

Hypothesis 4: Procedural justice will positively relate to organizational commitment.

3. Methodology

3.1 Sample

Sample for the present study consisted of 128 employees working in medical college. A 67.36% response rate (128 out of 190 possible respondents) was obtained. The gender composition of the sample was 61.71% male (N = 79) and 38.28% female (N = 49). The average age of the respondents was 30.40 years (SD = 3.25). On average, respondents had worked in their present jobs for 32.05 months (SD = 25.31).

3.2 Variables

Control variable: Age, Gender and Job Tenure

Predictor Variable: Distributive Justice and Procedural Justice

Criterion Variable: Job Satisfaction and Organization Commitment

3.3 Measurements

3.3.1 Distributive Justice Index

Perceptions of distributive justice will be measured with the Distributive Justice Index, developed by Price and Mueller (1986). A sample item states "My supervisor has fairly rewarded me when I consider the responsibilities I have". All reliabilities reported have been above .90, and the scale has shown discriminant validity in relation to job satisfaction and organizational commitment (Moorman, 1991).

3.3.2 Procedural Justice Scale

Perceptions of procedural justice will be measured using 15 item scale developed by Niehoff and Moorman (1993). A sample item states "Job decisions are made by my supervisor in an unbiased manner". Moorman (1999) has reported reliability above .90.

3.3.3 Job satisfaction

Job satisfaction was measured using job satisfaction scale developed by Singh and Sharma (1999). The scale consisted of thirty items and each item has five alternatives and the respondent has to choose one option which candidly expresses his response. The mean score of all the items represent the job satisfaction level of the individual employee. A sample item states "With regard to post retirement benefits, like pension, gratuity, etc., I rate my job as ……….." the test-retest reliability of the scale is reported to be 0.978 with N=52 and a gap of 25 days.

3.3.4 Organizational commitment

Organizational commitment was measured by the nine-item short version of the Organizational Commitment Questionnaire (OCQ) developed by Porter et al., (1974). There is a seven-point response dimension. A sample item states "I talk up this organization to my friends as a great organization to work for". Item scores are summed and the mean is taken. Thus, there is a possible range of scores from one to seven, and the higher the score the more organizationally committed an individual is judged to be. Reliability and validity evidence has been provided by Porter

et al., (1974), Steers (1977), Steers and Spencer (1977), and Stone and Porter (1975). The coefficient alpha is consistently high in the studies, ranging from 0.82 to 0.93 with a median of 0.90.

4. Results

Table 1 lists the means, standard deviations, intercorrelations, and reliabilities for the variables. The correlations among some of the study variables provided initial support for our hypotheses. In support of Hypothesis 1, Distributive justice was positively correlated with job satisfaction ($r = .61$, $p < .01$). In addition, procedural justice was positively correlated with job satisfaction ($r = .59$, $p < .01$), providing support for Hypothesis 2. Distributive justice was also positively correlated with Organization commitment ($r = .91$, $p < .01$), providing support for Hypothesis 3. Finally, procedural justice was positively correlated with Organization commitment ($r = .60$, $p < .01$), supporting Hypothesis 4.

REFER TO TABLE 1 IN APPENDIX

To test our hypotheses, we performed a hierarchical regression analysis for each of the outcome variable i.e. job satisfaction and organization commitment. Our goal was to determine if the hypothesized variables added a unique contribution in the prediction of the criterion above and beyond the control variables. As such, we first entered the control variables. Second, we entered the distributive justice and procedural justice. To control for potential demographic effects, we included age, gender and job tenure as control variables. In the description below of our results, all reported coefficients are standardized and adjusted R^2s are reported.

REFER TO TABLE 2 IN APPENDIX

REFER TO TABLE 3 IN APPENDIX

R^2 is the measure of how much of the variability in the outcome variable is accounted for by the predictors. For the model 1 its value is 0.436 which means that control variables (age, gender and job tenure) accounts for 43.6% of the variation in job satisfaction. However for the final model (model 2) this value increases to 0.557 or 55.7% of the variation in job satisfaction. Table 2 shows that, as a set of predictors, Distributive Justice and Procedural Justice explained an additional 12% of variance in the criterion over and above the control variables ($\Delta F = 16.52$, $p < .01$). Specifically, as shown in table 3 distributive justice significantly related to job satisfaction ($\beta = .32$, $p < .01$) supporting Hypothesis 1. Table 3 also shows that procedural justice was not found to relate to job satisfaction ($\beta = .11$, $p > .1$), providing no support for Hypothesis 2.

REFER TO TABLE 4 IN APPENDIX

REFER TO TABLE 5 IN APPENDIX

As shown in Table 4 R^2 for the model is 0.935 which means that control variables (age, gender and job tenure) accounts for 93.5% of the variation in organization commitment. However for the final model (model 2) this value increases to 0.953 or 95.3% of the variation in job satisfaction. Thus, as a set of predictors, Distributive Justice and Procedural Justice explained an additional 1.7% of variance in the criterion over and above the control variables ($\Delta F = 21.95$, $p < .01$). Specifically, as shown in table 5 distributive justice significantly related to organization commitment ($\beta = .42$, $p < .01$) supporting Hypothesis 3. It also shows that procedural justice was found to relate to organization commitment ($\beta = .10$, $p < .01$), providing support for Hypothesis 4.

5. Discussion

The present study attempted to link perceived organizational justice with job satisfaction and organization commitment. Distributive justice was found to be positively related to both job satisfaction and organization commitment. Consistent with this prediction, McFarlin and Sweeney (1992) found that distributive justice was a more important predictor of what they termed two "personal outcomes" (pay satisfaction and job satisfaction) and that procedural justice was a more important predictor of two "organizational outcomes" (organizational commitment and subordinate's evaluation of supervisor). Other studies have shown high correlations between procedural justice and job satisfaction (e.g., Mossholder, Bennett, & Martin, 1998; Wesolowski & Mossholder, 1997). In addition, Masterson, Lewis, Goldman and Tyalor (2000) showed procedural justice to be a stronger predictor of job satisfaction than interactional justice, although both had significant independent effects.

In addition Procedural justice was not found to be related to job satisfaction but it was significantly related to organization commitment. Prior work by Tyler (e.g., Tyler, 1990) argues that procedural justice has stronger relationships with support for institutions than does distributive justice. However, we should note that several studies have instead supported the distributive dominance model. For example, Lowe and Vodanovich (1995) found a stronger relationship for distributive justice and organizational commitment than for procedural justice, as did Greenberg (1994).

5.1 Theoretical and practical implications

The present study attempts to explore the relationship between perceived organizational justice, job satisfaction and organization commitment. Theoretically, the current results suggest that an organization justice perception plays an

important role in the development of organizational commitment and job satisfaction. Perceived organizational justice was expected to correlate significantly with both job satisfaction and organization commitment. Those who perceive justice in their organization are more likely to feel satisfied with their job and feel less likely to leave and feel more committed to their job. The current study will provide the administrators and policy makers with insights into the relationship between perceived organizational justice and work attitudes and the formations of employees' justice perceptions, and with insights into how to manage employees using organizational justice perspective to draw positive attitudinal and behavioral reactions from employees. The present study will help them better understand how to retain valuable employees, increase employees' commitment to and satisfaction with their work, reduce employee turnover, and improve the performance of the employees.

5.2 Limitations

Like all research, there are limitations to this study that must be taken into consideration. First, the data were cross-sectional in nature and this restriction prevents the inference of causality. At a minimum, a longitudinal design is required to infer any causality that may exist among these variables. Second, the results may have been affected by common method variance because all of our data were collected from self-report measures. Because measures come from same source, any defect in that source, any defect in that source contaminates measures, presumably in the same fashion and in the same direction. A primary concern of common method variance is that the relationships observed between variables may be due to the measurement method rather than the hypothesized relationships between constructs (Podsakoff & Organ, 1986). However, Saalancik and Pfeffer (1977) has suggested that one possible technique that could be used to reduce common method variance is to reorder the items on the questionnaire such that dependent or criterion variable follows, rather than precedes, the independent variable. This method was followed in the design of our questionnaire. Finally, the effect sizes for the relationships of interest were relatively small. This suggests the possibility of unknown moderator or mediator variables on the perceived organization justice-commitment and job satisfaction relationship. Organizational variables such as job characteristics, rewards, and other contextual variables may be of particular relevance because each of these variables is a potential antecedent of organization commitment and job satisfaction. Unfortunately, data were not collected in regard to possible moderators or mediators because such hypotheses were beyond the scope of this study.

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Appendix

Table 1. Means, standard deviations, intercorrelations, and coefficient alphas of study variables

Variables	Mean	SD	1		2
			3	4	
Age	30.40	3.25			
Gender	.61	.48			
J T	32.05	25.31			
1. DJ	23.37	4.38	(.82)		
2. PJ	61.85	7.18	.66*	(.86)	
3. JS	74.16	8.82	.61**	.59**	(.83)
4. OC	33.29	8.29	.91** (.89)	.60**	.51**

Note: JT- Job Tenure (in months completed); DJ- Distributive Justice; PJ- Procedural Justice; JS- Job Satisfaction; OC-Organizational Commitment.

Note: N = 128.

* p < .05.

** p < .01 (two-tailed).

Table 2. Hierarchical Regression for job satisfaction, control variables and perceived Organizational Justice (Distributive and Procedural)

Model	R	R Square	Adjusted R Square	R Square Change
1	.661[a]	.436	.423	.436**
2	.746[b]	.557	.538	.120**

Note: N = 128

** $p < .01$.

Predictors: (Constant), Gender, Age, Job tenure

Predictors: (Constant), Gender, Age, Job tenure, Procedural justice, Distributive Justice

Job satisfaction

Table 3.

Model	b	SE b	β
Step 1			
Constant	-16.03	10.47	
Gender	9.10	2.13	.50**
Age	2.82	0.32	.04**
Job Tenure	-0.03	0.03	-0.10
Step 2			
Constant	14.77	10.80	
Gender	11.92	2.29	.67**
Age	-0.62	0.67	-0.23
Job Tenure	-0.02	0.03	-.06
Distributive Justice	2.69	0.51	.32**
Procedural Justice	0.14	0.12	0.11

Note: N = 128

** $p < .01$.

Table 4. Hierarchical Regression for Organization commitment, control variables and perceived Organizational Justice (Distributive and Procedural)

Model	R	R Square	Adjusted R Square	R Square Change
1	.967[a]	.935	.934	.935**
2	.976[b]	.953	.951	.017**

Note: N = 128

** $p < .01$.

Predictors: (Constant), Gender, Age, Job tenure

Predictors: (Constant), Gender, Age, Job tenure, Procedural justice, Distributive Justice

Organization commitment

Table 5.

Model	b	SE b	β
Step 1			
Constant	-40.54	3.32	
Gender	-0.03	0.68	-0.002
Age	2.42	0.10	0.65**
Job Tenure	0.008	0.10	0.03
Step 2			
Constant	-51.08	3.32	
Gender	0.25	0.70	-0.02
Age	3.62	0.21	.42**
Job Tenure	0.002	0.009	0.006
Distributive Justice	-0.782	0.156	0.42**
Procedural Justice	-0.12	0.04	0.10**

Note: N = 128

** $p < .01$.

On Study of "Macro-tourism" Industry Theory:

A Case Study of Nanjing in China

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Abstract

The paper analyzes the concept, connotation, industrial components and its symbiotic way of "macro-tourism" from the perspective of industrial economy in combination with the development of Nanjing tourism. The "macro-tourism" theoretical system initially proposed in the paper gives those cities that are similar to Nanjing in the strength and growth stage of the tourist industry some reference in their tourism growth.

Keywords: Macro-tourism, Industry theory, Strategy

1. Introduction

1.1 Origin and Connotations of "Macro-tourism" Concept

In 1995, the strategic vision of developing macro-tourism was first brought forward by Nanjing Municipal Government among the capital cities of deputy provincial level across the country(Luo Zhijun 2001).The following year saw the submission of the research report entitled *The Macro-tourism Development in the New Century* by the Topic Group(Topic Group 1996).

There are various opinions about the concept of macro-tourism, though, gradually a certain consensus has been reached. The author summarizes the opinions as follows:

The so-called macro-tourism, is a concept beyond the tourism itself. That is, a breakthrough to the traditionally narrow and closed concept of tourism. With this concept, tourism is understood as a subsystem under the macro system of local socio-economic development and the benign interaction between the tourist industry as a subsystem and the socio-economic development as a macroeconomic system is emphasized. The concept contains the following meanings: 1. First of all, the independent industrial status of tourism is recognized, but more emphasis is put on the in-depth potential tapping and integration of the six elements within the value chain of tourism, namely, food, housing, transportation, travel, shopping, and entertainment.   2. More emphasis is put on the convergence and integration of tourism and other local industries while the independent industrial status of tourism is acknowledged. In other words, the comprehensiveness, relevance and drive of the tourism is emphasized.   3. With the concept of macro-tourism, we give priority to the comprehensive benefits of tourism in promoting the local social and economic development, i.e. we not only pay attention to the economic benefits of tourism itself but value the social and ecological benefits of tourism in improving the local city image, the investment environment, business attraction, employment, environment beautification and other aspects (Qiao Li and Li Maomin, 2000). It is indeed a concept originated from the local region. Such concepts as ecological tourism or sustainable tourism are introduced from the international tourism theories. However, the concept of macro-tourism emerged in a local background of relatively mature tourism with a history of 30 years.

To sum up, the author thinks the concept of "macro-tourism" can be defined as follows: it is a new concept created in the context that China's tourist industry grows relatively mature. First, it is an integrated industrial system made up of the leading industry of big tourism formed by the six elements of tourist industry, the auxiliary industries directly or indirectly related to the macro-tourism, and the associated industries related to core tourism due to the economic and technical ties. It is also a cluster of industries formed when the tourism industry chain deepens and widens due to the continuous inward and outward expansion of tourist industry value chain. A prevailing view is that the tourist industry consists of 58 related industries. See figure 1 for the structure and function of the macro-tourism industrial system. Secondary, it is a mode of tourist industry development mode with focus on the openness, interaction and integration

between the tourist industry and the related industries for the maximum overall benefits of the whole macro-tourism industrial system as well as the coordinated development of the social-economic-ecological macro-system.

Insert Figure 1 here

It is easy to see from the above figure that the macro-tourism industrial structure is featured by objective, overall, hierarchical and dynamic nature. To put it in simple words, the authors holds that "macro-tourism" is reflected by the large scale and scope of the tourist industry system as well as its multiple benefits and regional cooperation.

The macro-tourism concept is different from the traditional tourism concept in its new outlook toward resources, market and development.

First of all, the concept of macro-tourism replaces the tourism resources outlook in the traditional tourism concept with the theory of "Tourist Attraction", which ensures the comprehensiveness of tourism. In the traditional tourism concept, what attracts the tourists in the tourism destination are natural and human tourism resources. However, in the concept of macro-tourism, any visible or invisible element that attracts tourists can be regarded as the tourism resources in a broad sense. Such progress in the concept broadens the industrial components of the tourism as well as lays a theoretical foundation for the tourism to give a full play to its soft strength. For instance, Singapore takes pride in its ability to resolve the housing of its citizens on a tiny land and therefore shows the domestic and overseas tourists its achievements in housing construction as a tourism resource. Coincidentally, the activity of "Millions of citizens tour around Nanjing" organized by the Propaganda Department of the Nanjing Municipal Party Committee has the similar effect.

Secondary, the concept of macro-tourism contains the market outlook that the traditional tourism concept is void of. In the traditional tourism concept, the real tourists refer to those leaving their residence to spend the night elsewhere with motive to travel and strong capacity to pay the expense; while in the macro-tourism concept, anyone with motive to travel is a tourist regardless of the expense and whether to stay overnight elsewhere or not. For example, the trip rate for the urban residents in Jiangsu Province was 164.58% in 2005 and that for Nanjing residents was above the average rate with the number of trips 62,000,000 person times. The data are obviously obtained through the statistics according to the macro-tourism concept.

Thirdly, the development outlook of comprehensive benefits contained in the macro-tourism concept ensures the multiple benefits. In the traditional tourism concept, the pursuit of maximum self economic benefits is taken as the major target and the linkage effect between the social benefits and industrial chains of tourism tends to be neglected. However, in the concept of macro-tourism, tourism is nothing but the subsystem of national economy with linkage. Therefore, the focus is put on the self economic benefits as well as its leading function on other industries. It is calculated that the income of per 1 US dollar in the foreign tourism may add 2.5 US dollars to GDP; while in China, the same income may add 3.12 US dollars to GDP and add 5.9 US dollars to the FDI.

1.2 The Effect of Macro-tourism Industry

From the standpoint of GDP statistics, the macro-tourism has greater potential than the traditional tourism in promoting the growth of national economy (Xu Lin and Dong Suocheng 2007) benefits of tourism were reflected by directly adding the economic income of the departments and units engaged in tourism without taking the drive and relevance of tourism into account.

From the perspective of industry, the macro-tourism has multiple influences on national economy and thus applies stronger impact on GDP. First, take the travel services provided by the domestic tourism enterprises as consumption (C) which influences the added value of consumption in GDP accounting; Secondly, take the expenditures on the buildings, facilities and equipment that the travel services are rely on as investment (I) which influences the added value of investment in GDP accounting; Again, the travel consumption by the outbound tourists is taken as imports (M), which influences the added value of imports in the GDP accounting; The relevant travel services the domestic tourism enterprises provide to the inbound tourists are taken as exports (X), which influences the added value of exports in the GDP accounting. GDP is calculated in the following equation: $GDP = C + I + X - M$. Therefore, the macro-tourism has a greater potential in promoting the growth of national economy.

Compared with the traditional tourism, the macro-tourism industry system has a higher relevance and stronger drive. The research data suggest that China's international tourism income multiplier is between 3.56 and 4.97, the correlation coefficient between the international tourism income and the third industry is 0.978, that between the international inbound tourism and export trade is 0.977; and that between the international inbound tourism and investment attraction is 0.943. The above data suggest that due to the development of macro-tourism, the tourism will surely have a stronger impact on other industries and the local social economic development.

Compared with the traditional tourism, the macro-tourism industry system may create more employment opportunities.

As a typical labor-intensive industry, tourism is made one of the industries with the strongest drive to employment due to its strong employment multiplier effect.

In the project of tourism employment research jointly organized and completed by the National Development and Reform Commission and China National Tourism Administration, tourism employment is classified into "employment in tourism core industry", "employment in Industry with tourism feature", and "employment in tourism economy". Among them, "employment in tourism core industry" refers to the number of direct employment in tourism released in China's tourism statistics; "employment in industry with tourism feature" means the employment in the industries related to tourism. In fact, the contribution of tourism to the employment in the relevant industries accounts for over 10%; "employment in tourism economy" is defined in line with the definition of UNWTO, referring to the employment in the macro-tourism industry composed of tourism and the directly or indirectly related industries. The statistical result shows that the multiplier coefficient between the employment in industry with tourism features and in tourism economy is 1:3 while that between the employment in the tourism core industry and tourism economy is 1:8.

Compared with the traditional tourism, the macro-tourism industry system more likely gives birth to new tourism format which may become a new economic growth point in promoting the tourism economic development.

There exists coordination and innovation effect among the industrial units within the macro-tourism. The 14 industrial and agricultural tourism model areas of state level are the fruit of industrial integration. The agricultural and industrial tourism become the new economic growth points promoting the development of tourism in Nanjing. According to the statistics of the authorities in charge of tourism, in 2007 the five suburban zones and counties – Jiangning, Lishui, Gaochun, Pukou and Luhe received tourists totaled 5,470,000 person times and the total income of tourism reached CNY 6 billion accounting for 9.8% of the total income of tourism across Nanjing for the first time. The fast-growing tourism economy in suburban zones and counties plays an important role in the rapid development of tourism in Nanjing.

2. Theoretical Foundation for Macro-tourism Industry

2.1 The Theory of Industrial Life Cycle

The industrial life cycle refers to the whole period when the industry of certain type emerged till completely retreated from the social economic activities. The industrial life cycle mainly includes four phases: naive period, growing period, maturity period and declining period. The main indexes to recognize the phase of industrial life cycle are: market growth rate, demand growth rate, product varieties, number of competitors, entry to and exit from barriers, technological renovation and user purchase etc.

The author thinks that as Nanjing tourist industry is at the growing period and its basic task is to further strengthen itself, it is objective and necessary to change the growth mode of Nanjing tourism economy and realize the upgrading of tourist industry by choosing the macro-tourism model to integrate the endogenous and exogenous variables.

The author's judgment about the life cycle of Nanjing tourist industry is mainly based on the following three points. First, recent years have seen the continuous fast growing of Nanjing tourist industry. The total tourism income in Nanjing increased to CNY 46.28 billion in 2006 from CNY 22.04 billion in 2002 with an average growth rate of 20%, ranking the fourth place for consecutive 4 years among the 15 cities of deputy provincial level across the country. The foreign exchange earnings from international tourism was up to US$ 677 million in 2006 from US$ 323 million in 2002 with an average increase of 20.3%. The number of domestic tourists to Nanjing rose from 20,760,000 person times in 2002 to 38,000,000 person times in 2006, increasing at an average rate of 16.3% while the number of overseas tourists to Nanjing went up from 56,130,000 person times in 2002 to 100,920,000 person times in 2006, increasing at an average rate of 15.8% per year.

Second, there is no sign of growth limit for Nanjing tourist industry even thought it maintains high-speed growth. There was still a good tendency of fast development for Nanjing tourist industry in 2007. In 2007, the income from tourism was totaled CNY 61.49 billion, up by 25.2% over the same period of the previous year. The earnings of foreign exchange from tourism were US$ 808 million with year-on-year growth of 19.3%. Nanjing received the domestic and overseas tourists totaling 46,051,200 person times, increasing by 18.1% over the same period of the previous year. The number of the overseas tourists totaled 1,161,200 person times and that of the domestic tourists 44,890,000 person times, up by 15.1% and 18.1% respectively. Moreover, Nanjing tourist industry plans to achieve the total tourism income of CNY 100 billion by the year 2010.

Third, there is a large stock in the Nanjing tourist industry without reduction in growth rate. Up to the end of 2007, there were 436 travel agencies in Nanjing, an increase of 26 over the end of the previous year. There were 143 tourism-star hotels, up by 6; 31 four-star and five-star hotels, up by 9. 35 scenic spots of A level, increasing by 7 as against the end of the previous year. There were 14 industrial and agriculture model areas of the national level.

2.2 Proliferation Effect Theory of Leading Industry

U.S. development economist Rostow believes that no matter what the period is, even in a mature and growing economic system, economic growth remains as a result of the rapid expansion of the few leading departments, and such an

expansion also exerts a significant influence on other industries, that is the proliferation effect of leading industry, including recalling effect, flanking effect and forward effect. This is known as the Rostow Proliferation effect theory of leading industry.

In 2007, the total income from Nanjing tourism accounted for 18.78% of GDP and 38.82% of the added value of the third industry. From these two data we can easily come to the conclusion that Nanjing tourism, as a pillar industry, is taking the lead in the third industry. What's more, we may conclude that Nanjing tourist industry is equipped with the characteristics of leading industry through the further analysis of the proliferation effect.

The forward effect of Nanjing tourism refers to that the leading industry can evoke new economic activities or derive new industrial departments and may even establish new platform for the next important leading industry. The development of Nanjing tourism directly promotes the growth of the local transportation, hotels, scenic spots, retail stores, entertainment, exhibition, real estate and other industries.

The recalling effect of Nanjing tourism refers to that the high-speed growth of leading industry creates new demand for investment in various elements and thus stimulates the development of these industries. The development of Nanjing tourism stimulates the investment from the construction industry, post and telecommunications communications industry, finance and insurance industry, automobile manufacturing, culture and education industry to tourist industry.

The flanking effect of Nanjing tourism refers to that the rise of the leading industry will influence the local social and economic development. The development of Nanjing tourist industry promotes a new-round city construction and the tangible and intangible cultural heritage protection. Meanwhile, it plays a positive role in displaying the city image of Nanjing, optimizing the investment environment and promoting the environment protection.

The comprehensive, open and interactive tourist industry of Nanjing coincides with the proliferation effect of leading industry. This, again proves that the concept of macro-tourism is scientific and feasible.

2.3 Symbiosis Theory

The term Symbiosis was first originated from biology and presented by Germany mycologist Anton de Bary in 1879, meaning "Creatures of different species live together linked by some substance." After 1950s, the symbiosis theory has been applied to many fields of social study. In general sense, symbiosis refers to the relation formed between the symbiotic units in some symbiotic mode in a certain symbiotic environment. It consists of three elements, namely, symbiotic unit, mode and environment. Among them, symbiotic unit refers to the basic energy production and exchange unit of symbiosis, i.e. the basic material condition to form the symbiosis. The symbiotic environment refers to the exterior conditions for the existence and development of symbiosis.

The industry of macro-tourism meets the requirements of symbiosis theory for three elements. The tourist industry and the relevant 58 industries constitute the symbiotic unit. There are various interaction between the symbiotic units contained in the industry of comprehensive tourist in a certain socio-economic context, which means the existence of symbiotic model.

According to the symbiosis theory, there exists self-organization process between the units of the macro-tourism industry as well as the individuality of symbiotic process which is demonstrated as the coordination and even innovation among the units of each industry. That is to say, according to the symbiosis theory, the macro-tourism is not merely the simple sum of the units of each industry. Instead, there exists the coordination effect of "1+1>2" and it is possible to create new industries through the integration of existing industries.

3. The Symbiosis Model within the Macro-tourism Industry

The ideal symbiosis model in the industry of macro-tourism is the combination of symmetrical mutually-beneficial symbiotic model with the integrated symbiotic organizational model.

Within the industry of macro-tourism, each industry maintains association by means of products, labor, technique, employment and investment with tourism as the center, which is the basis for the existence of the industry of macro-tourism. However, those concepts used to express the industrial association in the traditional industrial economy like forward association and backward association, one-way association and round-way association, direct association and indirect association can only explain the internal association of the macro-tourism industry in superficial level. Moreover, we analyze the industrial association of macro-tourism to promote the development of macro-tourism through the understanding of its internal logic structure. Therefore, it is necessary to analyze the ways of industrial association of macro-tourism by implanting the relevant theories of other specialties. The symbiosis theory mentioned above is a good choice.

In the symbiosis theory, the way of interaction between the symbiotic units or the form of combination is known as symbiotic model, including four symbiotic behavior patterns - Parasitic, symbiotic partial benefit, mutual non-symmetrical symbiotic and mutually symbiotic symmetry and four symbiotic organization patterns - point symbiosis, intermittent symbiosis, continuous symbiosis and integration symbiosis.

It should be said that the ideal symbiotic model between the industries of macro-tourism is the combination of mutually-beneficial symbiotic model with the integration symbiotic organizational model. The "symmetric mutually-beneficial symbiosis" behavior pattern and "the integration symbiosis" organizational model are the ideal approach to achieve Win - Win and Multi – win. "Symmetric mutually-beneficial symbiosis" is the basic direction and fundamentals for the evolution of symbiotic system. The symmetric mutually-beneficial symbiosis state may reach Pareto optimal and meanwhile is the best incentive-compatible status or state of the best allocation of resources. "Integration symbiosis" means that there are stable leading symbiotic interface and domination media between the symbiotic units so that the symbiont with independent nature and function is formed. The all-direction communication and interaction ensures stable symbiotic relations.

Nevertheless, it is pity that the symbiotic model among the industries of the macro-tourism in Nanjing is just at the phase when the non -symmetrical mutually-beneficial symbiosis and the continuous symbiosis are combined. The combination of symmetrical mutually-beneficial symbiosis and the integration symbiosis should be the target for the development of the industry of macro-tourism in Nanjing, which marks the real maturity of the industry.

4. How to Measure the Degree of Integration

The symbiotic model between the industries of Nanjing macro-tourism is at the phase of non-symmetrical mutually-beneficial symbiosis and continuous symbiosis.

According to the interactive relationship between the service industry and manufacturing industry and agriculture in Jiangsu province, we may infer that the interaction between the Nanjing tourist industry and the relevant industries is non-equilibrium and the integration of the industries of the macro-tourism is just at the beginning.

From Lyon Ti-fu matrix (table 1), we may find that whenever the final use is increased by 1 unit in the manufacturing industry, the influential factor on the demand for the same industry could be 2.692794 and that for service industry is just 0.336495; whenever the final use is increased by 1 unit in agriculture, the influential factor on the demand for the same industry is 1.377853 while that for service industry is just 0.185153. Meanwhile, the influential factor of service industry on manufacturing industry, agriculture and the same industry is 0.592797, 0.110273 and 1.378234 respectively. It shows that the influence of the production of manufacturing industry, agriculture and service industry on the same industry is above the average level of impact on the entire society while the influence of one industry on the other two is relatively low. So we may conclude that the three industries are featured with internal cycle of high level but there is low association among the three industries (Yu Minghua 2007).

Due to the limit of statistical data, we may understand the service industry as tourist industry and take manufacturing industry and agriculture as the tourism-related industry. Generally such a qualitative conclusion can be reached that tourist industry is interdependent on other related industries but such dependence is not balanced. The reliance of the related industries on the tourist industry is relatively low (the comprehensive influential factor of manufacturing industry and agriculture on service industry is 0.521648) while the reliance of the tourist industry on the related industries is comparatively high (the comprehensive influential factor of service industry on manufacturing industry and agriculture is 0.703070). It shows that the integration of tourist industry and the related industries are at an earlier phase in the industrial chain. There is not a notable tendency for the integration of the tourist industry and the related industries.

Insert Table 1 here

The table 2 shows that the direct consumption coefficient and the total consumption coefficient of tourist industry to the manufacturing industry are 0.001079 and 0.006643 respectively, ranking the 16th in the service industry (the author has doubts on the statistical standards applied here). The data proved the above conclusion from another side (Yang Xuan, 2006).

Insert Table 2 here

4.1 The Integration Mode between the Industries of Macro-tourism

In the symbiosis of the macro-tourism industry, there is pervasiveness between the symbiotic units of tourism and new tourist industry system can be formed by the wide integration with other industries. The tourism symbiotic units can be embedded in the related industries and give the industries the tourism function and thus promoting the development of the related industries so as to form the symbiotic and win-win effect. Besides, we may search the relevant matching integrated unit among different industries with the tourism symbiotic unit as the center so as to form the tourist products satisfying the needs of tourist market and to realize the optimization and upgrading of the structure of tourist products (Wang, Huimin, 2007). There are following types for the integration in the practice of tourist industry.

(1) Associative integration. The mutual integration between the tourist industry and other industries forms new format of tourist industry and construct the compound new system of tourist industry and thus realizing the connection of the tourist elements with other industries. Such integration forms integrative new industrial system by giving the original

industry the new additional function and stronger competitiveness. When tourist function is integrated into industry, agriculture and real estate, the new-type industrial format with mutual penetration to tourist industry is formed such as industrial tourism, agricultural tourism, landscape real estate and timeshare, sports tourism, cultural tourism and rehabilitation tourism.

(2) Functional integration. In the regional social economic construction especially in the construction of key projects, we should integrate the tourist function consciously to realize the integrative development of tourist industry and regional social economic construction. For instance, the TV tower in Shanghai – the Pearl of the Orient became the symbolic tourism landscape of Shanghai; The hundred of stores and 7 theme parks on the airport of Singapore enriches the local tourist products as well as upgrades the recreational function and reputation of infrastructure; the Nanjing-Hangzhou ecological expressway and Cross-sea bridge at Hanghzou bay recently completed are both integrated with the tourist function in the transport infrastructure.

(3) Structural integration. The reorganization integration between the elements within the tourist symbiotic units may bring about the new multi-function tourist products through the mutual integration of tourist elements with various functions. For instance, the Disneyland of Hong Kong jointly launched the low-price tour package of "Hotel + Air + tickets" with United Airlines after integrating the hotels and amusement parks affiliated with it. Nanjing Sun Yetsen Mausoleum Scenic area enjoys a high reputation in the tourist market nationwide and possesses its resort hotels so it could have a try like Disneyland.

4.2 Strategy for the Development of Macro-Tourism Industry in Nanjing

Through the above analysis, the author argues that "macro-tourism" is not only a slogan brought forward by Nanjing Municipal Government but also supported by deep connotations and broad industrial development theories. Macro-tourism is basically characterized by comprehensiveness, openness and interaction. Therefore, we have to follow its own rules in the course of developing the industry of macro-tourism in Nanjing.

From the perspective of tourism management system, we will further give play to the functions of Nanjing Tourism Steering Committee. Nanjing Tourism Bureau is in the dilemma of "Big industries with small functions". It is not easy for the bureau to undertake the major task of developing Nanjing's macro-tourism industry. In this regard Shanghai has experience for Nanjing to follow. In 2007, Shanghai Government made the strategy of developing tourist industry: "Promote the industrial integration and form the macro-tourism economy typical of Shanghai. The proposition and implementation of this strategy is based on the organizational form of Shanghai Tourism Management Committee who is led by the deputy mayor in charge of tourism and whose members include the person in charge of each department involved in the industry of macro-tourism. Such management system guarantees the implementation of the strategy of macro-tourism in Shanghai (Liu, Chen, 2007).

From the perspective of income from tourism, we shall increase the proportion of flexible tourist consumption in the total income of tourism. Among the six tourism elements, namely, food, housing, transportation, travel, shopping, and entertainment, the first four rigid tourist consumption accounts for 70% of the total income from tourism in Nanjing while the last two 30%. In contrast, shopping and entertainment accounts for 60% of the total income in Hong Kong boasting of developed tourist industry. The contrast shows the low penetration of Nanjing tourism to relevant industries. However, it also suggests the potential and future target of Nanjing tourism from another angle.

To perfect Nanjing tourist product lines, strengthen the attraction of tourism and prolong tourists' stay. In addition to the traditional tourist products, we should make efforts to develop such products as business travel, holiday travel, sports travel, study travel, ecological travel and self-driving travel.

To strengthen the industry integration, create new-style tourism format and promote the development of Nanjing tourism economy. We should strengthen the integration of tourism with the relevant industries and vigorously develop agriculture tourism, industrial tourism, education tourism, exhibition tourism and city park leisure tourism, etc. so as to promote the social economic development of Nanjing with the framework of macro-tourism.

To develop the industry of macro-tourism in Nanjing, we should strengthen the regional cooperation of different levels. Regional tourism cooperation is far from a fresh topic for Nanjing tourist industry. So far Nanjing has joined some regional tourism cooperation organization including the Nanjing-Zhenjiang-Yangzhou Tourist Area with Nanjing as the center and the Yangtze River Delta tourism cooperation organization with members from some developed areas. Among them, the Nanjing-Zhenjiang-Yangzhou Tourist Area and Nanjing Metropolitan Area converge to some extent.

To develop the industry of macro-tourism in Nanjing, we should pay special attention to exert the social benefits of tourist industry. With cultural connotations and economic characteristics, tourist industry is a kind of cultural industry in a broad sense. As its focus on the unification of social, economic and ecological benefits, the industry of macro-tourism should consciously play its positive role in shaping the city image of Nanjing, enhancing the soft strength of the city, optimizing the investment environment, improving the life quality of Nanjing citizens and raising the public happiness index. The social benefits of tourist industry are reflected by its role as a bridge. "Tourism lays a

foundation for the business and trade". For example, the Plum Flower Festival, Osmanthus Festival and Yangtze River International Tourism Festival lay a sound foundation for the economic growth of Nanjing.

To develop the industry of macro-tourism in Nanjing, we should strengthen the association between the tourism economy and the overall social –economic development of local region and serve the local economic development. For example, like the national macro economy, Nanjing regional economy is also confronted with a series of pressure such as the urban-rural dual structure issue, inflation, the impact of RMB appreciation and employment pressure, etc. To follow and serve the local economic development with tourism, we should take advantage of the characteristics of tourism when taking the macro economy into consideration. The specific measures include: developing agriculture tourism, no arbitrary price hikes, properly encouraging the local residents for outbound tourism, actively attracting labor employment based on the labor-intensive feature of tourism.

In short, to develop the macro-tourism in Nanjing, we should understand the tourist industry as a whole. We should take the composition of all the industries of tourism into full consideration and observe the development of the tourist industry from the perspective of big region, big market, big features and big coverage. We should develop the tourism under the concern and support of the whole society.

5. Conclusion

The author has been pondering in the course of writing on such a question: why is the slogan of "macro-tourism" presented as early as 13 years ago mentioned today? There could be three answers as follows: first, the presentation, development and maturity of "macro-tourism" is going gradually; second, the model of "macro-tourism" is the natural choice for the development of China's tourist industry; third, we used to understand "macro-tourism" as a single slogan so our shallow academic research on it resulted in the practice failure.

The paper offers a basic framework for the theoretical research on the industry of macro-tourism in Nanjing by analyzing the concept, connotations of macro-tourism and relations between its industries as well as the symbiotic model and development path.

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Table 1. Lyon Ti-fu factor coefficient among the main industries of Jiangsu Province

Industry	Agriculture	Manufacturing industry	Service industry
Agriculture	1.377853	0.219731	0.110273
Manufacturing industry	0.687762	2.692794	0.592797
Service industry	0.185153	0.336495	1.378234

Table 2. The consumption coefficient of service industry to manufacturing industry in Jiangsu Province

Industry	Direct consumption coefficient	Rank	Total consumption coefficient	Ordering
Service industry	0.160199		0.592797	
Transportation and warehousing industry	0.220025	4	0.636440	3
Postal industry	0.061469	15	0.151408	15
Information transmission, computer services and software industry	0.258111	2	0.665098	2
Wholesale and retail trade	0.122050	10	0.312134	10
Accommodation and catering industry	0.093579	11	0.232378	13
Finance and insurance industry	0.126242	9	0.315700	9
Real estate	0.081259	14	0.208066	14
Leasing business services	0.090852	12	0.245489	11
Tourist industry	0.001079	16	0.006643	16
Scientific research	0.174717	7	0.457298	7
Comprehensive technical service industry	0.088813	13	0.235034	12
Other social service industry	0.185162	6	0.476620	6
Education	0.128136	8	0.315858	8
Health, social security and social welfare	0.456463	1	1.123941	1
Culture, sports and entertainment	0.238703	3	0.592508	4
Public administration and social organizations	0.199278	5	0.490947	5
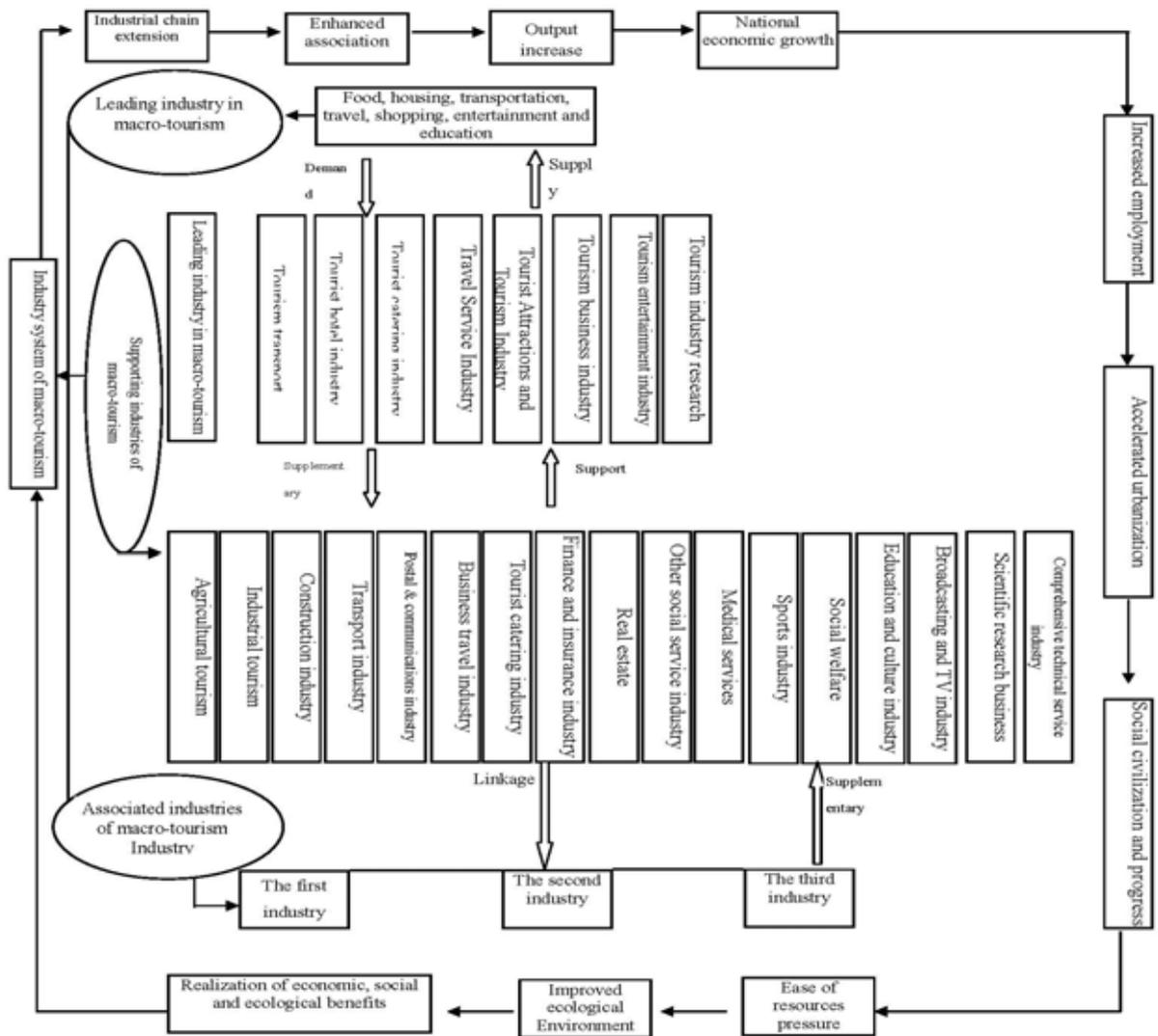
Figure 1. Structure and function of the industry system of macro-tourism

A Study on the Tendency of Sole Proprietorship

for American-Funded Investment

in China and Our Countermeasures

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Abstract

In recent years, many well-known foreign-funded enterprises have accelerated their pace of sole-proprietorship in China. Among them, American-funded ones occupy a large portion of the market share. By means of stock expansion, capital increase and internal acquisition, more and more American partners in co-invested enterprises have managed to control the whole business after years of operation. If we identify the tendency of foreign-funded enterprises toward sole proprietorship and grasp the essence of it, we will be fully armed to improve the quality of using foreign capital in China and strengthen the core competence of Chinese enterprises. Thus, I here present the paper on the tendency of sole proprietorship for foreign-funded enterprises in China, taking the American-funded ones as the specification of the analysis, with a view to providing our countermeasures from the global perspective.

Keywords: American-funded investment, Sole proprietorship, Self-development

1. American-funded enterprises' inclination to sole proprietorship in China

The economic and trade relations between China and the United States have been developing steadily and rapidly. Till now, the USA is the largest export market and the second biggest trade partner of China (Note 1). Attributing to China's entry to WTO and the improvement of domestic investment environment, foreign-funded investment has experienced a new upsurge in China. Currently, China is one of the major sources of overseas profits for American enterprises. In 2005, the enterprises invested by the United States in China have seen actual profits of 9.7 billion U.S. dollars. At the same time, American corporations have continued to expand their market share in China through investment. In 2005, their sales within the Chinese market amounted to 77billion U.S. dollars (Note 2). By the end of October 2008, the accumulated American investment in China had established 61,352 enterprises, and actual investment in China exceeded 67.2 billion U.S. dollars.

The prominence of American investment in China is due to its intensive technologies and scale effect. Having realized the great potential of Chinese market large transnational enterprises as GE, Motorola, Wal-Mart, and GM (Note 2) rush for the hot pie. They re-layout their production base in China by undertaking some large projects here. Apart from increasing scale of investment, they also adjust their business strategies. With a goal of business promotion in China, more and more American-funded enterprises make every effort to break away the form of joint ventures and achieve sole proprietorship. This can be done by means of internal acquisition, capital increase, stock expansion, and weakening the function of Chinese partners. It has become a remarkable feature of foreign-funded enterprises investing in China recently. Take specific examples in the American-funded investment, Johnson & Johnson and UPS have respectively changed the joint ventures in China into their child companies with sole proprietorship in 2005. All 8 branches of AIG China have achieved sole-proprietorship during AIG's 13 years in China in flagrant defiance of the WTO regulations. DuPont, the giant of US Chemicals, materials and energy Corporation, has increased its capital and expanded its stocks to achieve complete control of joint ventures' operation in China.

Insert Figure 1 here

2. Reasons for American enterprises to seek sole proprietorship in China

The tendency of sole proprietorship for American-funded enterprises is not an accident, but a result of the changing

investment environment in China. It is not only a strategic response to the macro-environment of China, but also the adjustments of global strategies and enhancement of world competition. To be specific, the reasons can be summarized as follows:

2.1 Improvement of investment environment in China

Entry of WTO marks a turning point for foreign investment in China. Since then, China has been trying to adjust domestic investing rules in accordance with that of international practices. Data from the States Economics and Labor Ministry suggests that the total investment of American will surpass 10 billion USD in 2008.

Insert Figure 2 here

According to the Law of the People's Republic of China on joint Venture Using Chinese and Foreign Investment issued in 1979, the proportion of foreign capital in joint venture must be less than 50%. However, as time goes by, China has enacted laws and regulations to ease this condition in order to make better use of foreign capital. In 2002, the Catalogue for the Encouragement of Foreign Investment Industries canceled the discriminations to joint ventures and sole proprietorship in exchange rate and taxation, further weakening the restrictions on foreign investors' sole proprietorship (Note 4). Similarly, many restrictions on rate of localization and the proportion of export are gradually canceled by revising the Law of the People's Republic of China on joint Venture Using Chinese and Foreign Investment and other relevant laws. And this inspired the enthusiasm of American enterprises to seek sole proprietorship. From then on, they invest more in China, expand stocks to obtain the control of joint ventures or even establish sole-owned child enterprises. To name a few, Lancôme has shut down more than a dozen and Coca-Cola and Starbucks have bought out their Chinese partners. Unable to buy out its partner, HSBC is hedging its bets by pursuing local incorporation, something only recently allowed. Besides, plus the accumulated information of Chinese economy and politics, American enterprises can schedule the operations in China independently without business support from their Chinese partners, which again decreases the advantages of American-China joint ventures. Due to the betterment of Chinese investment environment, American enterprises can thus expand their business scope.

2.2 The conflicts between partners in joint venture

In the early days, American enterprises, just as most transnational enterprises, have chosen joint venture as their form of investment. For one thing, American enterprises can learn the cultural and economic environment from their Chinese partners. For another, the joint venture can benefit from local governments' favorable policies on taxation and land. When American Johnson & Johnson has entered Chinese pharmaceutical market in the year 1985, because of unawareness of Chinese investment and operation rules and activities, they have chosen Shanghai Pharmaceutical Corporation, the largest production base for medicine in China, and Xian-Janssen, the biggest sales center in China to construct a joint venture. Then, as Johnson & Johnson is engaged in Chinese market, it makes best use of channels hold by Shanghai Pharmaceutical Corporation to market its health products and achieves a great prosperousness. From then on, Johnson & Johnson begins its more than 20-year legend in China. In this sense, the joint venture has played a significant role in the early days of American-funded investment in China.

However, the inherent characteristics of joint venture and the inevitable conflict between the two partners have somehow foreshadowed its finishing destiny. On one hand, American partners hope that the joint ventures in China can well serve their global operations while Chinese partners focus on their regional interests. On the other, American enterprises prefer to control the joint venture but they are not familiar with the taste of Chinese customers. In most cases, they introduce top managers from the US into the joint venture but the new administration usually can not work in China. As a result, they fail to win the heart of Chinese partners. This in turn triggers conflicts. As the partners have different opinions for administration and control, plus different cultures and languages, the conflict will escalate into fierce competition and then to separation. No matter what it is the prosperousness and decline of Sino-trans, the conflicts between the Chinese partners and American-funded enterprises are prominent, which speeds up the death of joint ventures.

2.3 Requirements of technological monopoly and secrecy guarding

From the above examples and analysis, we may draw a simple conclusion that most American-funded enterprises in China are large-scale manufacturers. Up till late 2007, 76% American-funded enterprises in China are in the industry field, especially in electronic and transportation; chemical and machinery manufacturing industry come next.

Insert Figure 3 here

In the industry field, technology is the most competitive advantage for American-funded investment in China. And technological monopoly is what they are aiming at. Nowadays, global resources are more and more integrated for American enterprises and investment structure in China is optimized gradually. Under this condition, American enterprises are able to transform from labor-intensive ones initially to capital-and-technology-intensive ones with high added-values. Because technology is the competence of the latter product, it is the key to win global competition to

protect technology. Form of joint ventures will hardly avoid sharing technology with Chinese partners, thus harming American monopoly.

When it comes to technological competence in product, the development and research center is the front of enterprises. Since 2000, American enterprises have begun to build R&D institutions in China. Intel, the head of high-tech industry, has acquired stakes in more than 70 companies on the mainland and in Hong Kong. The company established a $200 million fund for China in 2005, which has already been fully invested. This year, Intel Corp's venture investment arm created a $500 million fund on April 7th, 2008, to invest in China's technology start-ups, in a fresh move to expand in the country's booming hi-tech sector (Note 5). UPS, the world number one in logistics and express delivery, spent $180 million before the Olympics to relocate its intra-Asian logistics hub to Shenzhen given the growth in shipping along the southern rim of China. Many other American enterprises have successively set up research and development centers, including GE' mobile telecom high-tech center, SAP (China) coordinated commercial program center, Microsoft's MSIT-China research and development center in Shenzhen, GM's research and development center in Shanghai.

As intellectual right and secrecy is vital in technology, sole proprietorship is a better way for American transnational enterprises investing in China. Therefore, American-funded enterprises in China have tried to seek sole proprietorship or achieve stock-controlling by means of capital increase, internal acquisition, and stock expansion. If not in the form of sole proprietorship, technology secrecy may be released by partners or intellectual property may not be guaranteed.

2.4 The enhancement of market competition

In order to survive in the severe market competition, enterprises have to invest more capital to input more in product differentiation, to enlarge the scope of products, and to increase the functions of products, all of which demand for amounts of capital. Despite the fact that China has become far more open legally because of commitments made to WTO as a condition of membership, its hunger for foreign investors has been sated. The availability of labor and land has fallen, domestic capital is abundant, the local market is now understood to be among the most attractive in the world and sentiment has become more nationalistic and self-satisfied. So there is less interest in providing access to foreign partners.

Soap and consumer products titan Procter and Gamble used the joint venture to launch its Chinese operations in 1988. The US group began with a stake of 69 percent but restructured the deal in 1997 to take ownership of 80 percent. The separation was largely because of litigation between P&G and its original partner Hutchison Whampoa Limited (HWL). The focus of the litigation was that whether P & G had the right to extra-charge tech-support fees to improve its research and development and strengthening its laundry service. P&G then paid 1.8 billion US dollars to buy out its partner in its China business. The company has taken full ownership of the venture by snapping up the remaining 20 percent stake. In fact, Chinese companies are happy to receive money and technology, but do not want to be mere adjuncts to foreign firms; in many cases they have large, often global, ambitions of their own. Too often the allocation of profits and investments was unclear, leading to endless squabbling. Therefore, the enhancement of market competition adds to the ambition for American-funded transnational enterprises to take the full ownership of their China-based companies.

3. Countermeasures of China in face of the tendency

The technology-intensive US-funded enterprises in China serve as one of important sources of high technologies. However, once they step into the road of sole proprietorship, the American partners will enhance the control of technology, what will significantly block the Chinese enterprises' way of learning advanced technology from the US. Besides, as those enterprises centralize their resources in China and try to achieve efficient operation, sole proprietorship of foreign-funded investment might result in squeezing out Chinese medium-and small-sized enterprises in relevant industries and forming market monopoly and industrial control.

In face of the tendency of sole proprietorship for American-funded investment in China and the negative effects it brings, we can do something to respond in order to improve the quality of foreign capital utility in China and strengthen the core competence of Chinese enterprises. To be specific, Chinese government and enterprises should work hard at the following aspects:

3.1 To revise laws and regulations on foreign-funded investment

Obviously, American enterprises possess strong competence in fields of electronics, transportation, industrial machinery manufacture, and chemical industry. Because of it, American enterprises might drive Chinese enterprises in relevant industries out of business. Therefore, China government should constitute the law of anti-monopoly, avoiding American enterprises' industry monopoly in the process of sole proprietorship and potential hurts to domestic enterprises. The government should also make best use of relevant rules of WTO to protect the infant industry against harms from sole proprietorship. Besides, we should adjust the foreign investment to protect the independence of China economy by means of restricting foreign sole proprietorship as much as possible in the backbone industries (such as military, machinery, electronics, petroleum, and chemical industry) that can affect economic safety and national economy. At the

same time, we should encourage foreign investors to invest more in modern manufacture, service industry, and high-tech industry, helping the development of Chinese enterprises.

3.2 To invest more on R&D and encourage technological innovation

"Science and technology are the primary productive forces." As a result, Chinese government should invest more on the self-development of native enterprises. Similarly, enterprises are suggested to set up R&D institutions, improve the capability of self innovation, and develop new product with self intellectual property to confront the compact from American technological monopoly. The essence here lies on the consciousness of self innovation. Furthermore, Chinese enterprises should transfer from the Origin Entrusted Manufacture to conceptual innovation in production. If Chinese enterprises can form their own core technology, brands with complete intellectual property will drive the upgrade of domestic industrial structure.

3.3 To enhance the strategic alliance

Empirical study suggests that modern competition usually takes place between large corporate groups. In order to occupy a world position and compete with those transnational enterprises, Chinese domestic enterprises should enhance the strategic alliance. A successful example of strategic alliance is that of home appliance, when TCL established alliance with Sony to produce and manufacture LCD in 2003. By this way, domestic enterprises can integrate the separate resources in China and push the technological communication and innovation in alliance. Besides, it can help to achieve economies of scale and improve the comprehensive competence of Chinese industry, enhancing domestic enterprises' strength to fight with foreign capital giants. The sole proprietorship of American enterprises does not mean a separation between American enterprises and domestic enterprises. They just adopt a more flexible way to choose their cooperate partner. Strategic alliance will serve as an ideal mode for Sino-US cooperation, which can help enterprises sustain flexibility in operation mechanism and high effectiveness in resources utility. Chinese enterprises should make best use of strategic alliance and absorb American enterprises' advanced technologies, business management, and brand strategies in cooperation to enhance their capability of self-innovation and core competence.

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Name of transnational enterprise	Enterprises acquired by transnational enterprise	Original proportion of stocks hold by foreign investors	Present proportion of stocks hold by foreign investors	Time of acquisition	Remarks
American DuPont	Dongguan DuPont	50%	87%	1995	
American DuPont	Shanghai DuPont	30%	100%	1996, 1998, 2005	55%, 70%, 100% respectively in three years
American DuPont	Dongying DuPont	85%	100%	2006	

Figure 1. American DuPont's capital increase and stocks expansion in China

Resource: Jiang, Zhujin. (2007). Transnational Enterprises' Strategies of Investing in China, Beijing, China Financial & Economic Press.

Year	number of projects			contract amount($10thousands)			real amount($10thousands)		
	USA	the whole	weight%	USA	the whole	weight%	USA	the whole	weight%
1996	2517	24555	10.25	691576	7327642	9.94	344333	4172552	8.25
1997	2188	21001	10.42	493555	5100353	9.68	323915	4525704	7.16
1998	2238	19799	11.3	648373	5210205	12.44	389644	4545275	8.58
1999	2028	16918	11.99	601611	4122302	14.59	421586	4031871	10.48
2000	2609	22347	11.67	800089	6237952	12.83	436389	4071481	10.77
2001	2606	26140	9.97	751487	6919455	10.56	443322	4687759	9.48
2002	3363	34171	9.84	815647	8276833	9.85	542392	5274266	10.28
2003	4060	41081	9.88	1016147	11506999	8.83	419651	5350467	7.86
2004	3925	43664	8.99	1216516	15347895	7.93	394005	6062996	6.50
2005	3741	44001	8.05	1351150	18906398	7.15	306123	6032469	5.07
2006	3206	41473	7.73	1204364	19372734	6.22	288509	6302061	4.55

Figure 2. American-funded investment in China (1996-2006)

Resource: Directory of American Investment in China. (2006), Trade Promotion Office of the Embassy of USA, Beijing.

Industry	Joint venture	Sole proprietorship	Total
Tools, Industry, Equipment Manufacture	89	71	160
Electronics, Transportation	108	53	161
Chemical Industry, Medicine	91	32	123
Service Industry	25	56	81
Agriculture, Food	14	9	23
Agriculture, Environment Protection	34	38	72
Textile, Leather, Ornament	7	12	19
Information technology, Office Appliance, Toys	15	9	24
Art works, School Appliance, Precision Machine	14	5	19
Paper, Package Industry	10	13	23
Total	407	298	705

Figure 3. Catalogue of American investment in China

Notice: Some enterprises in this table fall into more than two sorts.

Rebranding of Higher Educational Institutions in Malaysia

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Abstract

In order to create reputations in the local and international market, rebranding of Malaysian Higher Educational Institutions (HEIs) have been practiced intensively in the recent years. The main objective of this study is to review rebranding of HEIs in Malaysia, which are focus more on public and private HEIs. In order to adapt education to national development needs and as the number of enrolment of tertiary students has been increasing rapidly, education reforms are constantly taking place in Malaysia. In response to the growth of students' enrolment in degree courses, public colleges and public university campus branches are being upgraded to university-colleges status beginning in 2000.

Keywords: Rebranding, Higher Educational Institutions (HEIs)

1. Introduction

Number of studies have been done in the academic field (Daly and Moloney, 2004; Muzellec and Lambkin, 2006). Table 1 shows the recently published and unpublished rebranding related studies. Some of the studies refer to this phenomenon as repositioning or revitalising the brand. Muzellec et al. (2003) and Rosenthal (2003) claimed that this phenomenon should cover wider areas; therefore, they introduced the term 'rebranding'. Koku (1997) explained that while a firm decides to change its name, not only would it change the firm's performance but also the communication between a firm and its consumers. In general, services brand focus on three areas: (1) external branding which explains how organisations create brands (Harris and de Chernatony, 2001; McDonald et. al., 2001); (2) internal branding which focuses on employees (Aurand et. al., 2005; Hankinson, 2004; Vallaster, 2004); and (3) customers' perceptions towards brands (Jones et al., 2002; O'Cass and Grace, 2004; O'Loughlin and Szmigin, 2005).

2. Objectives

The objectives of this paper are to review the development of public and private education institutions in Malaysia and the importance of branding in higher educational institutions.

3. The Development of Public Higher Educational Institutions

Under the Universities and University Colleges Act 1969, five public universities were established in the 1960s to 1970s, four public universities were established in the 1980s to the early 1990s, and ten public universities in the late 20th to the early 21st century (see Table 2). With a shift to the knowledge-based economy in the mid-1990s and failure of public institutions to offer places to the rising demand for higher education, higher education in Malaysia have been divided into public and private systems (Wong and Hamali, 2006). To date, there are around 600 private HEIs and 20 public universities in Malaysia.

In order to adapt education to national development needs and as the number of enrolment of tertiary students has been increasing rapidly (see Table 3), education reforms are constantly taking place in Malaysia (Ahmad, 1998). In response to the growth of students' enrolment in degree courses, public colleges and public university campus branches are being

upgraded to university-colleges status beginning in 2000. For example, Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM) was the Fisheries and Marine Science Centre Universiti Putra Malaysia (UPM) at Mengabang Telipot, Kuala Terengganu.

In 2001, the National Technical University College of Malaysia (KUTKM), Melaka was the first public 'university-college' introduced in Malaysia under the University and University College Act 1971 Section 20, and now there are six public university college status institutions. The Minister of Education at that time, Tan Sri Musa Mohamad clarified that a university-college can be defined as a small scale university, which (1) awards its own degree qualifications, (2) has an enrolment around 10,000 students, (3) offers 70% degree courses and 30% diploma courses, and (4) is practice and application oriented (Sooi, 2006). StudyMalaysia (2005) explains that a university offers courses in all areas of knowledge; while university-college institutions focus on specific areas. Furthermore, students' enrolment in each University College should not exceed 10,000 students.

Efforts have been made by the government to increase students' enrolment in public university-colleges. However, misconception about the status of 'university-college' as second-class higher educational institution has failed to attract students' enrolment (Sooi, 2006). At the end of 2006, the Ministry of Higher Education upgraded all the public university colleges to full-fledged universities.

4. The Development of Private Higher Educational Institutions

Private education in Malaysia has flourished since 1950s. Private schools were at that time alternatives or gateways for students who were unable to enter government schools. In the early 1970s, there was a significant shift of roles and functions in the private education system whereby its providers placed more importance on pre-university courses as well as providing tutorial support to students in preparing them for external examinations in semi-professional and professional qualifications (StudyMalaysia, 2005).

The early 1980s witnessed a significant change in the roles and responsibilities played by private colleges as providers of tertiary education. By the end of 1980s and 1990s, Malaysia witnessed an unprecedented and accelerated growth of private higher education. Due to the growth of information and communication technology (ICT), higher costs and a change in government policies lesser number of Malaysians are pursuing higher education overseas (StudyMalaysia, 2005). During the global recession in 1980s, a group of Malaysian academics from the University of Malaya and Institute Technology MARA initiated efforts to establish private colleges offering undergraduate Bachelor's degrees (Tan, 2002). As a result, private colleges were established during this period.

In the mid-1980s, Dr Mahathir Mohamad (Malaysia's 4th Prime Minister) suggested that local private colleges should explore twinning with higher education institutions in Australia and countries elsewhere (Tan, 2002). The growth of twinning programmes had introduced various models of credit transfers, for example one year study in local and two year study in foreign country (1+2). Colleges such as Inti, Metropolitan, HELP, and KDU were attracting huge numbers of students through their twinning programmes. Conducting foreign degree programmes in local institutions attracted the attention of middle- and high-income customers.

The rapid growth of Malaysian private HEIs in the 1990s did not result from the above reasons only but also from the growth in the number of high school graduates, rising income of parents, and rising costs of public higher education (Ayob and Yaakub, 1999). Tan (2002) also stated that the economic boom of the 1990s led to the establishment of a group of single discipline private colleges. For example, the Asia Pacific Institute of Information Technology (APIIT) focuses on information technology, and Limkokwing Institute of Creative Technology offers arts and design programmes.

The trend of corporate presence in Malaysian private higher education intensified during the 1990s economic boom. The collaboration between the corporate sector and colleges became significant for colleges competing for a better image following a proliferation of colleges established in the 1990s (Tan, 2002). The increase in the number of private colleges and foreign university campuses in Malaysia also resulted in an extensive growth of foreign students (Ghazali and Kassim, 2003).

From 1996 onwards, the Education Act, 1961 enabled the systematic growth of Private HEIs and brought about the setting up of private sector-funded universities and branch campuses of foreign universities. The first private Malaysian university, namely Multimedia University, was established in 1997 (StudyMalaysia, 2005). In 1998, the 3+0 programmes were introduced which allowed students to obtain their degrees from a foreign university without having to do any part of their programmes overseas (Said, 2002).

Ayob and Yaakub (1999) categorised five groups of private higher educational institutions in Malaysia: (1) large corporations or organisations closely linked with the government, (2) established by large public listed corporations, (3) established by political parties, (4) independent private colleges, and (5) local branches of foreign universities. In January 2005, there were altogether 599 private higher educational institutions in Malaysia; 11 private HEIs with university status, 11 private HEIs with university college status, 5 foreign university branch campuses, and 532

non-university branch campuses (StudyMalaysia, 2005).

Higher education at the degree level was totally public in the 1990s (Shahabudin, 2005), and private colleges were not allowed to award their own degree. Yet demand remained strong for degree programmes and professional courses in the education market. Therefore, many private HEIs established formal arrangements with foreign universities to offer educational programs ranging from certificate courses to postgraduate programs (Lee, 2003).

The drastic drop in the Malaysian exchange rate from RM2.50 to RM3.80 to the US dollar caused the Malaysian government to introduce a series of reactive measures, including efforts to reduce the outflow of students to universities overseas (Tan, 2002). Since early 2000, private education in Malaysia has gained local acceptance as a pathway for higher education and Malaysia is also being internationally recognised as an education exporting country where foreign students can pursue their higher education (StudyMalaysia, 2005).

The Malaysia National Development Plan (1990-2010), a master policy framework for several major policy plans to realise the vision of the country to become a developed and industrialised country by the year 2020, aims to make Malaysia a centre of excellence in education in the pacific region (Tan, 2002). In line with the government's aspirations to make Malaysia an educational hub, the Ministry of Education (MOE) actively invited qualified private HEIs to become University-Colleges in the year 2001.

In conjunction with the vision, in the year 2001, Malaysia's first private university-college was introduced. There were 535 colleges, which were invited to be transformed and the colleges needed to comply with the quality standard outlined under the Malaysian Qualifications Framework (Norfatimah, 2005). Even though the transformation of colleges to university-college status attracted a number of colleges to apply to change the status, customers have the perception that the 'university-college' status is second-class higher education (Sooi, 2006). Furthermore, the university-college status institutions are only allowed to grant their own degrees, or in other words, the Malaysian brand. O'Cass and Lim (2002) indicated that the country-of-origin which conferred degrees had significantly influenced a customer's choice, and specifically western origin is preferred over brands of an eastern origin. Thus, this provided a great challenge for the colleges to transform themselves into university-college status institutions.

Nevertheless, the enrolment in private HEIs increased dramatically from 15,000 in 1985 to 322,891 in 2005, and the total population was 2,838,832 students in 2005 (Abidin, 2004; StudyMalaysia, 2005.). The huge demand for higher education had attracted many big corporations to be involved in the education industry in the early 1980s (Tan, 2002). Sungei Way Group set up its Sunway College, and First Nationwide Group set up KBU International College are some of the examples. However, the business of private higher education only gave moderate returns to investment compared to other service industries (Ayob and Yaakub, 1999). Therefore, higher educational institutions had to develop a set of unique characteristics in order to face challenges such as the development of a more customer oriented service approach to education and an increased emphasis on corporate image (Melewar and Akel, 2005). As a result, marketing activities had become more significant for Private HEIs in Malaysia.

The University College of Technology & Management Malaysia (KUTPM) became the first private college to be upgraded by the Ministry of Education in the year 2001. In the year 2003, three private colleges were upgraded to university college status empowering them to award their own degree qualifications. This move by the Government also marked the start of international branding of Malaysian homegrown degree qualifications (StudyMalaysia, 2005). Currently, there are 12 private university-colleges, which have been upgraded. Table 4 shows the new and old names of the private university-colleges in Malaysia.

Generally, there are two patterns in changing the names of the colleges in order to build a better identity of themselves among university-colleges in Malaysia. The first pattern was the name is changed completely, for example, Ikram College of Technology has changed its name to Kuala Lumpur Infrastructure University College. Second, the name is changed but the umbrella name remains, for example L&G Twintech Institute of Technology has changed its name to International University College of Technology TWINTECH (IUCTT), and HELP Institute has been changed to HELP University College.

5. Importance of Branding for Higher Educational Institutions (HEIs)

Rosenthal (2003) claimed that the literature of marketing in HEIs has been discussed since the early 1980s; two of the significant areas are the branding process and the change process within the educational institutions' settings. Kotler and Fox (1995) have indicated the importance of branding in educational institutions and said "branding can add value to an educational institution's offer and provide more satisfaction for the consumers". However, published literature related to branding in educational institution is still limited.

Gray et al. (2003) have investigated the influence of cross-cultural values on the positioning of international education brands. The result has identified learning environment, reputation, graduate career prospects, destination image and cultural integration as dimensions of brand positioning. The most significant result of this study suggested that a standardised or adapted branding strategy could be adapted in Asian markets. This study provides a better understanding

of brand strategy in education branding in order to avoid the danger of adopting product based branding strategy.

Branding is powerful in providing competitive advantages. Stensaker (2005) indicated some benefits of branding to higher educational institutions: attract students from high income families, provide information and image, improves institutional cooperation, instigates internal change, re-discovers what they are and their basic purposes.

6. Conclusion

HEIs extensively practice rebranding in order to increase their brand equity. Rebranding has been debated as one of the most significant brand management practice. The phenomenon of rebranding often occurs in the service industry, and is specifically crucial for universities and colleges (Koku, 1997b). In order to create reputations in the local and international market, rebranding of Malaysian HEIs have been practiced intensively in the recent years. Malaysia attracts foreign students from neighbouring countries like Indonesia, Thailand, Singapore, Bangladesh and China. The current important consideration lies in the initiative to improve and strengthen the higher education sector, both public and private. Multi-aspect enhancements to meet the global benchmark are vital to serve as the foundation for the country's higher education to compete in a more challenging and competitive higher education sector with the inclusion of regionalism (Wan, Kaur and Jantan, 2008).

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Table 1. Summary of literature on rebranding

Citations	Purpose of study	Finding
Hankinson and Lomax (2006)	To evaluate the effects of rebranding in large UK charities on staff knowledge, attitudes and behaviour.	Rebranding has positive impact on knowledge and attitudes of employees, but effect on the behaviour of employees less.
Muzellec and Lambkin (2006)	To understand the drivers of the corporate rebranding phenomenon and to analyse the impact of such strategies on corporate brand equity.	Rebranding factors: Change in Ownership structure Change in Corporate strategy Change in External environment Change in Competitive position
Melewar et al. (2005)	To explore France Telecom's visual rebranding program.	The process of rebranding: Problem recognition Development of strategies Execution of action plan Implementation Reviewing the impact
Daly and Moloney (2004)	Continues exploration of Muzellec et al. (2003) study and presents a case history of a company.	Corporate rebranding framework: Analysis – market analysis, brand audit, opportunity identification Planning – communicating to Internal customers, renaming strategy, the rebranding marketing plan Evaluation
Stuart and Muzellec (2004)	Introduced the concept of rebranding, the motivations for corporations to rebrand, and discussed the issues of the name, logo and slogan.	Rebranding definition
Causon (2004)	The process of managing the change programme within the organisation as it rebrands and repositions	Three stages: The education phase The identification phase The implementation phase
Rosenthal (2003)	Analyses the process of renaming postsecondary institution.	Continuous attention to marketing and growth is necessary once an institution does decide to rebrand itself.
Kaikati (2003)	Analyses the re creation of a global consulting giant by pinpointing the main lessons of rebranding, restructuring and repositioning.	New identity: Communication Names Logo Strategy: phase-in/phase-out
Muzellec et al. (2003)	Investigated the corporate rebranding phenomenon	Rebranding Mix: Repositioning Renaming Redesigning Relaunching

Lomax et al. (2002)	Qualitative study examines seven UK-based organisations which have re-branded in the past five years.	Conceptual model of the re-branding process: Trigger New Brand Development Project Management Follow-through
Boyle (2002)	Identify the problems of Shell Retail's rebranding programme.	The nature of convenience retailing chain. The task oriented nature. The geographically dispersed location. Never created significantly positive brand equity.
Koku (1997)	Compared the enrolment patterns, before and after the colleges and universities changed their names.	The name change did not affect the enrolment.
Koku (1997b)	Investigated the financial performance of an organisation during the post name change.	Corporate name change is an effective strategy for firms in the services industry to communicate improved standards.

Table 2. List of Public Higher Educational Institution and Year of Establishment

Name	New Name	Year Established	Year Renamed
Universiti Malaya (UM)	-	1962	-
Universiti Sains Malaysia (USM)	-	1969	-
Universiti Kebangsaan Malaysia (UKM)	-	1970	-
Universiti Pertanian Malaysia (UPM)	Universiti Putra Malaysia (UPM)	1971	1997
Universiti Tecknologi Malaysia (UTM)	-	1975	-
International Islamic University Malaysia (IIUM)	-	1983	-
Universiti Utara Malaysia (UUM)	-	1984	-
Universiti Malaysia Sarawak (Unimas)	-	1992	-
Uniersiti Malaysia Sabah (UMS)	-	1994	-
Maktab Perguruan Sultan Idris	Universiti Pendidikan Sultan Idris (UPSI)	1997	-
Institut Teknologi Mara (ITM)	Universiti Teknologi Mara (UiTM)	1999	1999
Kolej Universiti Islam Malaysia (KUIM)	Universiti Sains Islam Malaysia (USIM)	1998	2007
Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM)	Universiti Malaysia Terengganu (UMT)	1999	2007
Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO)	Universiti Tun Hussein Onn Malaysia (UTHM)	2000	2007
Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM)	Universiti Teknikal Malaysia Melaka (UTeM)	2000	2007

Kolej Universiti Kejuruteraan dan Teknologi Malaysia (KUKTEM)	Universiti Malaysia Pahang (UMP)	2001	2007
Kolej Universiti Kejuruteraan Utara Malaysia (KUKUM)	Universiti Malaysia Perlis (UniMAP)	2001	2007
Kolej Ugama Sultan Zainal Abidin (KUSZA)	Universiti Darul Iman Malaysia (UDM)	2005	2007
Akademi Tentera Malaysia (ATMA)	Universiti Pertahanan Nasional Malaysia (UPNM)	1995	2007
Universiti Malaysia Kelantan (UMK)	-	2006	-

Source: Ministry of Higher Education (MOHE), 2007

Table 3. Total enrolment of students in higher educational institutions

Institutions	Year						
	2000	2001	2002	2003	2004	2005	2006
Public HEI	270,436	304,628	281,839	294,359	293,978	307,121	331,025
Private HEI	261,043	270,904	294,600	314,344	322,891	258,825	323,787
Total	531,479	575,532	576,439	616,869	616,869	565,946	654,812

Source: Ministry of Higher Education (MOHE), 2007

Table 4. Malaysian Private University-College

No.	New Name	Old Name	Year Established	Year Upgraded
1.	University College of Technology & Management Malaysia (KUTPM)	PTPL college	1996	2001
2.	Limkokwing University College of Creative Technology (LUCT)	Limkokwing Institute of Creative Technology	1992	2003
3.	Kuala Lumpur Infrastructure University College (KLIUC)	Ikram College of Technology	1997	2003
4.	International University College of Technology TWINTECH (IUCTT)	L&G Twintech Institute of Technology	1994	2003
5.	University College Sedaya International (UCSI)	Sedaya International College	1990	2003
6.	HELP University College (HUC)	HELP Institute	1986	2004
7.	Sunway University College (SyUC)	Sunway College	1987	2004
8.	Binary University College of Management and Entrepreneurship (BUCMS)	Binary College	1984	2004
9.	Asia Pacific University College of Technology & Innovation (UCTI)	Asia Pacific Institute of Information Technology (APIIT)	1994	2004
10.	Selangor International Islamic University College (SIUC)	Selangor Darul Ehsan Islamic College	1995	2004
11.	INTI International University College (INTI-UC)	INTI College Malaysia	1986	2006
12.	Taylor's University College	Taylor's College Subang Jaya	1969	2006
13.	Kolej Universiti Insaniah (KUIS)	Institut Agama Islam Negeri Kedah	1995	2006

Design and Application of a General-purpose

E-learning Platform

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Abstract

In this paper, a general-purpose framework for e-learning platform is designed based on B/S structure. The development steps are put forward. Moreover, the key technologies of the platform are introduced, and then the applications of the e-learning platform are discussed.

Keywords: Network, Teaching platform, E-learning, Application mode

1. Introduction

The twenty-first century is an era of information technology. With the development of the multimedia technology and network technology, the multimedia technology and the Internet combined to a greater extent. Their application in teaching has brought about tremendous opportunities and challenges to the traditional education. Not only did it expand the teaching content, but also gradually change people's education concept; Further more, it also require new teaching and learning environment. Therefore, how to construct the current network conditions for multi-media teaching and learning environment, make full use of the multi-media teaching network, and improve teaching effectiveness, is becoming an important task for all educators and teachers.

2. Content, characteristics and situation of e-learning platform

2.1 Content of e-learning platform

The content of e-learning platform is the learning environment achieved through the use of computer programming, which is built on the network infrastructure. Its background is the teaching information storage database and database management system (DBMS). The future system is the web interface running in a browser.

2.2 Characteristics of e-learning platform

The planning and design of e-learning platform must serve the practical education and management, and meet the needs of daily work of teaching and management.

(1) Collaborative interaction

E-learning platform must support the interaction and collaboration among the objects, including the two-way transfer of information and interaction between two groups of students and between teachers and students.

(2) Openness

E-learning platform should have openness, mainly in terms of time, space and the object. That is, the objects can get access to the information through the system at any time and in any place. Or they can have real-time or non-real-time exchange of information with other objects who have different social background.

2.3 Situation of e-learning platform

According to statistics, in the United States, the number of people learning through the e-learning platform is growing at the rate of more than 300 percent every year. Till 1999, there were more than 70 million Americans who had acquired knowledge and skills through online education. More than 60% of the companies finished their staff training and continuing education through online education. In the UK, the government's investment in online education is also very large. Almost all the schools have set up their own online schools. China's Ministry of Education has put forward the concept that "education must be promoted through the modern information technology in education." In recent years,

with the development of " Connecting Schools Project" and "Western University Campus Network Project", many schools have set up their own online learning platform on the base of campus network., and have launch teaching activities on the base of online teaching platform.

At present, there are a number of easy-to-use and efficient online learning platforms overseas, such as Learning Space of Lotus, WebCT (Web Course Tools) of Columbia University, Top Class of WBT System and Virtual-U of Simon Fraser University, Canada. There are also many domestic companies and schools who have developed or are going to develop similar E-learning platforms. Major universities have developed teaching supporting system in preparation for the development of modern distance learning and teaching system. Tsinghua University Network, which is the supporting platform of Tsinghua online teaching system, has been put into operation.

3. Analysis of E-learning platform requirement

E-learning platform carries out for the use of the online exchanges between teachers and students. Its main function is to provide interactive environment for teachers and students. The analysis of specific functional are as follows:

(1) Information bulletin. Teachers publish the teaching-related information and the students check the information timely.

(2) Introduction of teachers and courses. Introduction of teacher and school courses, credits and other related information.

(3) Watch courseware. By real-time playback and synchronization of the writing content on the blackboard (mostly PowerPoint or HTML-based script), students can learn course by themselves.

(4) Download courseware. Students can download the courseware, and teachers upload to support the self-study after school hours.

(5) Operations management. Students download the homework, complete operations and submit to the teachers, and check their grades in time.

(6) Teacher-student interaction. Teachers and students exchange questions and answers online in real-time. Students and teachers can also communicate non-real-time interaction by way of sending instation message or E-mail.

(7) Management module. This area is divided into teacher section and administrator section. Teachers published information on the dynamic course, upload courseware and homework, manage user rights of the students. Administrator work for day-to-day maintenance of the e-learning platform.

(8) Online test. Students can select in the examination questions for online test and check test results.

E-learning platform breaks the constraints of time and space in traditional education. It is an extension of the classroom teaching, and thus is better adapted to modern society's "life-long learning" atmosphere.

4. Construction of e-learning platform framework

4.1 The overall framework

The overall framework of the application objects are classified into three sub-platform systems according to students, teachers, the management. The three sub-platform systems will split various functional system and then combine again, to form the framework combined with vertical function system and nichorizontal application object, to complete the function of all systems through the integration of the three sub-platform, as is shown in Figure 1.
Insert Figure 1 here

4.2 Application Mode

The online learning system is designed using the three-layer B/ structure, as is shown in Figure 2. End users requests to the server from the browser, using ASP technology to acquire user request information. When the request information is integrated with the background databases, the information is handled by means of connecting the databases through ODBC, and the handled information will be sent back to the users through ASP.

The greatest advantage of the use of B / S structure is that users can log in online learning platform through the browser, with no need to install any client software, and it has no regional limitation.

Insert Figure 2 here

4.3 Functional Design

According to the overall block diagram of e-learning platform shown in Figure 4.1, the specific design features of e-learning platform are as follows:

(1) Teachers Corner. To support the teaching activities on the net. Teachers can publish courseware and teaching information in the "Release Management" sub-module; upload homework and correct on line in the "Job Management" sub-module; add, delete or modify in the course information in the "Course Management" sub-module, in order to make

students more aware of the selected course information; maintain the information of students, which can be used as the basis of dynamic allocation of the administrator.

(2) Site management. To initialize the site information and daily maintenance. Administrator can do the maintenance of online information, forums, update the user information and operate the dynamic allocation of authority.

(3) Login. To validate visitors authority to the use of e-learning platform.

(4) Course description. To introduct information on the courses.

(5) About teachers. To introduct information for teachers.

(6) Courseware download. To download coursewares used by students.

(7) Homework Management. To download the homework, upload finished homework, and check grades.

(8) Online learning. To learning the courseware on the e-learning platform

(9) Online test. To test students and issue results.

(10) Teacher-student interaction. To provide the interactive channel between teachers and students. Teachers and students can interact by means of sending E-mails and instation message. They can also exchange ideas through the online Q&A forum.

4.4 Key technologies and tools of e-learning platform

The main technology and tools of e-learning platform includes:

(1) ASP language. ASP (Active Server Pages) is one of popular web application program development languages. ASP is produced and executed on the website server with high interaction and high efficiency.

(2) Dreamweaver MX. This is one of the most popular web site authoring tools. It is equipped with a full suite of page design tools and web site management tools. It can set up, manage and modify websites rapidly, providing HTML/DHTML, Java Applet, ASP 2.0, JSP 1.0 as well as development tool module such as CSS style to achieve "WYSIWYG" effect.

(3) Microsoft SQL Server. It is a Microsoft database product introduced for the large network environment. Taking into account the actual situation of teaching and the using easiness and stability of Microsoft SQL Server database, it uses Microsoft SQL Server 2000 database.

5. Application of e-learning platform

Upon completion, the e-learning platform has been applied in some courses. It greatly improved the quality of teaching. The advantages are as follows:

(1) Traditional paper-based homework and reports are upgraded to electronic documents. It is a reform for a variety of homework and media for report.

(2) The traditional scoring means is replaced by the time-saving and effort-saving web form score means, with no time and space constraints. Teachers are saved from chore of repeated finding, checking, cumulating scores and so on.

(3) Online Q&A has improved the efficiency of the teacher-student interaction. The traditional one-on-one teaching is changed into one-to-many teaching in time and space. Students can see how teacher answer the issues raised by themselves and others, thus enhancing the efficiency of the exchange.

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A General-purpose E-learning Platform

Learning System

Teaching Management System

Teaching system

Courses information management

On-line learning

Homework management

On-line testing

Teaching intercommunion

Teaching Resource Download

Users information management

Authorization management

Website maintenance

Students information management

Teaching content management

Teaching intercommunion

Teaching Infor Management

Homework managemtn

Figure 1. E-learning platform for the overall model framework

Client

ASP

Application Layer

ODBC SQL

DBMS Server
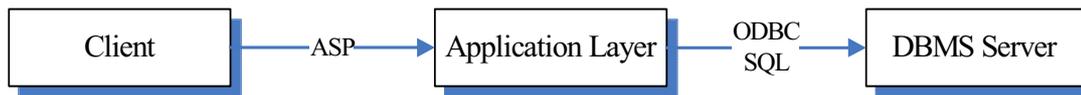
Figure 2. B/S structure of E-learning platform mode

Study on the Security Capability, the Security Planning and the Security Mechanism of Rural House in China

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Abstract

The concept and connotation of rural house are first defined in the article, and the main factors and main contents of the security capacity of rural house are proposed. Second, aiming at the contents of the rural house security capability, the concept and meanings of rural house security planning are researched, and the general principals and basic objectives of rural house security planning are proposed, and the content frame of the rural house security planning is confirmed. Finally, the corresponding security mechanism of the rural house security planning is proposed in the article.

Keywords: Rural house, Security capability, Security planning, Security mechanism

At present, most research results about the disaster reduction and prevention aim at reducing the economic losses induced by natural disasters such as flood, earthquake and storm to the largest extent, and ensuring the security of people's lives and properties and the normal implementation of economic construction. Because of the importance of rural house for farmers' production, living and property, many researches can be classed in the domain of rural house security capacity. Nowadays, the rural house security capacity has been the comprehensive research domain for many subjects, and the main research views include following five aspects. First, some early researches proposed to implement the comprehensive disaster prevention technical measures and the post-disaster emergency rescue plan in the rural construction, and establish the macro control system of comprehensive disaster prevention in the rural construction layout (Ge, 1996, P.27-28 & Ge, 1996, P.42-44). The second aspect is the researches about the subsystem in the disaster prevention and reduction system. And they include the applications of the information integration technology and the GIS technology in the disaster prevention management system (Fu, 2005, P.20-22 & Shi, 2007, P.47-51), and the improvement of the management system (Chen, 2006, P.12-13). The third aspect is the researches about the structured improvement and countermeasures aiming at various disasters in various periods, from the single disaster prevention improvement from the structure (Wang, 1992, P.22-23 & Cui, 2004, P.41-44) to the implementation of the disaster reduction and comfortable housing project (Lu, 2007, P.28-29). The fourth aspect is the research contents and methods about the disaster evaluation (Sun, 2001, P.122-130). The fifth aspect is to begin to emphasize the research results of foreign disaster prevention measures (Bao, 2001, P.34-36 & Lu, 2008, P.39-40).

Above research results only studied the security capacity of rural house from some layers and parts, and they didn't comprehensively and completely research this problem. Though there are many disaster prevention countermeasures, but the security planning and the security mechanism design of rural house have not been proposed from the special angle of the security capacity of rural house. Therefore, based on the summarization of above research results, the establishment of the security capacity, the security planning and the security mechanism for rural house are systematically proposed in the article as follows.

1. The concept and main contents of rural house security capability

1.1 The concept of rural house security capability

The security capacity of rural house means the comprehensive capacity of rural house avoiding being damaged by disasters and ensuring villagers' life and property to the largest extent.

1.2 Main contents of rural house security capability

1.2.1 Disaster prevention capability

Combining with main development trend of domestic disaster prevention and reduction works, and using domestic and foreign disaster prevention and reduction research results for references, the disaster prevention capacity of Chinese rural house is proposed, and it includes the monitoring and warning capacity, the planning capacity and the post-disaster reconstruction capacity. The post-disaster reconstruction is the important development to enhance the disaster prevention capacity of rural house, and it is a new cycle of disaster prevention and reduction, so it is ranked in the disaster prevention capacity.

The monitoring and warning capacity mainly includes the disaster monitoring and warning capacities (all-the-time monitoring capacity and the short-term timely warning capacity) of various relative departments, the warning capacity of the village to some disasters (such as fire), the ability to inform relative personnel for the information coming from superior government, and perfect infrastructures (TV, telephone and network).

The planning capacity mainly means that the rural house should be planed as a whole, accord with national standard of construction technology and possess reasonable position of infrastructure, and the rural house can effective serve for the whole town.

The post-disaster reconstruction capacity mainly includes the quick evaluation capacity, the repairing capacity and the renovating capacity of rural house after disaster. The post-disaster quick evaluation capacity of rural house is to quickly evaluate the damage rate of rural houses after disaster ends according to the judgment standards and criterions of damage, and take the evaluation results as the premise and references for the post-disaster recovering and reconstruction. The repairing capacity is the capacity to repair the damaged houses with reasonable planning, and the renovating capacity is to renovate the seriously damaged houses with reasonable planning, and gradually renovate the damaged houses with reasonless planning, and make them to reach the planning standard. Aiming at the national situation of China, the present renovating ability is the emphasis of the development.

1.2.2 Disaster resistant ability

The disaster resistant ability means the ability to resist the disaster, and it mainly includes the disaster tracing analysis ability and the quick reaction capability.

(1) Basic contents

The disaster tracing analysis ability is the ability to exactly collect and analyze the disaster development information after disaster happens.

The quick reaction ability is mainly to do the preparation works after the disaster warning occurs and after the disaster happens, trace and analyze the relative information of disaster, and make effective and timely countermeasures.

(2) Emphases and applied range of two kinds of abilities

The disaster tracing analysis ability is applied in the large-scale disaster, because many disasters belong to the disasters with long-term damages or instant damages, and only the manpower can not resist thus large-scale disaster, but people can trace and analyze the disaster to know the characters of disaster in various stages, and establish the disaster resistant measures.

The quick reaction ability is applied in the fire or other disasters with small damages. For these disasters, when the infrastructure is self-contained, the quick reaction ability is the key to resist the disaster.

2. Concept, meanings and main contents of rural house security planning in China

The security planning of rural house is the key measure to ensure and enhance the security capacity of rural house, and the works and effects of disaster prevention and reduction for rural house security capacity are embodied by the implementation of the rural house security planning. Therefore, the rural house security planning according with local actual situation and its practical implementation are the key to protect people's life and property for rural houses in the disaster prevention and resistant actions.

2.1 Concept and meanings of rural house security planning in China

2.1.1 Concept of rural house security planning in China

Aiming at the contents and evaluation system of the rural house security capacity, the rural house security planning is a new parallel planning integrating management design and practical planning for the actual construction of rural house, management mechanism, management mode, and disaster prevention and reduction, which could enhance the rural house security capacity through aiming at the key factors about the security of rural house.

2.1.2 Meanings of rural house security planning in China

The rural house security planning has two meanings, and the one is the construction planning of house and infrastructure matching with the rural house security to enhance the security capacity, and the other one is the management design planning of rural house security. The construction planning of house and infrastructure matching with the rural house security is the material planning, and it is the premise and material base to realize the rural house security capacity and it is "visible security guarantee". The management design planning is the system guarantee to implement the rural house security planning and it is "invisible security guarantee".

2.2 General principles and basic targets to make the rural house security planning

2.2.1 General principles to make the rural house security planning

(1) The rural house security planning should accord with the exiting policies, laws and standards in China.

(2) China has a vast territory, and differences among different regions are obvious, so the rural house construction should possess different characters according to local economy, customs, habits, and building materials. The rural house security planning should give prominence to local characters and can not require simple identical standard.

(3) According to the concrete situations of the local place, the main disaster should be selected as the maim object for the rural house security planning, and other disasters should also be properly considered at the same time.

(4) The guideline giving priority to disaster prevention and combining prevention with resistant measures should be implemented.

2.2.2 Basic targets to make the rural house security planning

The basic targets include gradually enhancing the security capacity of rural house, reducing the economic losses induced by various natural disasters to the largest extent, and guaranteeing people's security of life and property in the disaster. When the village suffers the forecasted disaster (such as the flood or the earthquake), the rural houses in the village are not damaged seriously without personnel casualty. In addition, when the disaster is serious, the life line project including water, electricity, food and medical treatment can be recovered as soon as possible, and there are safe public buildings which can be used to take care of peoples in the disaster.

2.3 Main content frame of rural house security planning in China

2.3.1 Construction layout of rural house and security matched infrastructure

The construction of rural house should enhance the disaster prevention and reduction capacity aiming at local main disasters.

(1) The spatial planning of rural house should be emphasized in the construction.

(2) Aiming at the character that most of construction of rural house all uses local materials, the technical method and intension standard to reinforce the local construction materials should mainly consider the characters of local materials.

(3) The classic construction standards of rural house structure should be established according to local disaster type and main disaster.

(4) The matched security infrastructure should be planned with the rural house, and the scale and service ability of matched infrastructure should take the scale of rural house as the standard, and consider that the location should ensure quickly serving all direction of rural house, and the location of matched infrastructure is advised to located in the geometric center of the rural houses.

(5) The communication establishments including information and network should be constructed, and the disaster resistant class of the communication establishment should be enhanced, or the communication establishment with strong disaster resistant capacity should be added to ensure the information transfer when disaster happens.

2.3.2 Layout of management and design

The layout of management and design includes the disaster prevention capacity management mechanism and flow design, and the disaster resistant management mechanism and flow design. The contents of each part all correspond with the rural security capacity.

(1) The disaster prevention capacity management mechanism and flow design includes the monitoring and warning management mechanism and flow design, the management mechanism and flow design of house building structure technology standard, the drumbeating education scheme and management mechanism, the post disaster quick evaluation management mechanism and flow design, and the post-disaster repairing and reconstruction management mechanism and flow design.

(2) The disaster resistant management mechanism and flow design includes the disaster information tracing and analysis management mechanism and flow design, the pre-disaster quick reaction management mechanism and flow design, and

the disaster quick reaction management mechanism and flow design.

3. Matched security mechanism design of rural house security planning in China

Though the rural house security planning is a compelling standard, but there must be necessary guarantee measures to make it implemented reasonably and favorably.

3.1 System of construction quality management

Aiming at the confusion of rural house construction in China, the management of construction quality should be urgently strengthened.

3.2 Encouragement of architecture technology innovation and extension

Various-level construction technology design departments, colleges and scientific research institutions should be encouraged to cooperate with local district through various modes and put forward the house technical design and technical standards with local characters. Based on that, the technology should combine with the building custom and styles, and develop to the direction with economy, saving, friendly environment and good security. At the same time, the excellent construction technologies should be largely extended to make them be understood and accepted by farmers.

3.3 Regulations about legal status of rural house security planning in China

The legal status of rural house security planning should be guaranteed, which can ensure the rural house security planning to be implemented in practice and enhance the rural house security substantially.

3.4 System of rural house security planning supervision in China

The special supervision department should be established for the rural house security planning to supervise the establishment and implementation process and result and ensure the science, rationality and application of the security planning.

3.5 Establishment of Chinese national disaster prevention organization

(1) Before the disaster happens, various reasonable modes should be utilized to store resources such as capitals and materials.

(2) The financial management organization should be established, and it functions include preparing capitals, integrating the beneficences from various institutions, operating various post-disaster insurance compensation, and supervising relative lower units.

3.6 Emergency organizing and planning system in disaster and post disaster

When the disaster happens, people should make reactions quickly, establish rescue plans, and implement various measures for disaster reduction, distribute personnel, capitals and relative materials. Only under the premise with perfect organization, everything will be completed highly effectively.

3.7 Construction personnel's training system for rural house

The survey results for rural house indicate that most construction personnel of rural house are local nonprofessional personnel, such as householders, householders' relatives and friends, bricklayers and plasterers in the village. These personnel can be selectively trained periodically or non-periodically, so they can transfer the professional knowledge and technical standards to others in the construction, which can gradually enhance the construction quality of rural house by enhancing construction personnel's quality and knowledge level.

3.8 Innovation of rural house insurance financing mode

Aiming at the actuality of farmers' low insurance rate, according to farmer's economic income level and present psychology, the rural house insurance financing mode should be innovated, for example, the insurance mode of "one Yuan in one year" can be pushed in the national range to share the risk equally according to the regional character and frequency of large-scale disaster.

3.9 Perfection of Chinese relative laws and regulations

A series laws and regulations about disaster prevention and reduction should be established and perfected to punish those behavior subjects with serious mistake, serious fault and problems in the disaster prevention and disaster resistant process. For example, the enterprises or persons with commercial fraud and hoarding behaviors must be chastised in the disaster relief work.

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Problems and Prospects of Marketing

in Developing Economies: The Nigerian Experience

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Abstract

The study takes a holistic view of some of the problems facing marketing in developing economies, such as low marketing education, preferences for foreign products and low patronage for non-essential products, high cost of production, inadequate infrastructures. Others are few competitive opportunities, excessive government regulations and interference, political instability and civil unrest. Despite these problems, there are prospects for improvement in the nearest future based on the high growing population of most developing countries such as Nigeria large unexplored markets, attractive government incentives, growing affluence, to mention but a few. Therefore, it is concluded that developing countries such as Nigeria must put their arts together and overcome these few difficulties in order to exploit the marketing opportunities that are abound in their various domains.

Keywords: Marketing, Developing economies, Problems, Prospects and developed economies

1. Introduction

Marketing is an evolving and dynamic discipline that cuts across every spectrum of life. This explains why contemporary societies are now involved in one form of marketing activity or the other. The recent advancement in technology, has aided the free flow of goods and services as well as information amongst businesses and institutions, thereby turning the marketing environment into a global village (Ewah, 2007). For the purpose of this article, marketing is defined as the performance of both business and non business activities for the satisfaction of humanity and society's well being through judicious exchange processes. On a general perspective Kotler and Armstrong (2001) described marketing as a social and managerial process whereby individuals and groups obtain what they need and want through creating and exchanging products and value with others.

Marketing is intricately linked with the economy of virtually all nations of the world. It is the major factor, especially in developed economies responsible for the wealth of nations and the means of resuscitation during economic depression. For the developed countries as a whole, marketing experience has occurred as part of the evolutionary cultural process and also progress of these nations. Therefore practical problems are profoundly handled as they had arisen, with available resource means at the material time. But the developing countries are evidently operating in an entirely different context today. Time has changed many things. Many circumstances in the business world now appear to be affected by standardized but chimerical factors, so that operating in these situations amount to operating under conditions of fait accompli. Countries like U.S.A, Japan, UK, Germany, France, Switzerland and Belgium have tremendously benefited from the performance of their marketing activities, which have really helped to boost their economies and contribute to the GNP. But for most developing countries, (including Nigeria) the scenario and the business climate have not been too favourable, due to some attendant problems, such as poverty, fragmented markets, weak investment culture, prevalence of sub-standard local products, and the unwillingness of the majority of manufacturers and businesses to imbibe ethical marketing practices. These problems make it difficult for marketing to grow and prosper in developing economies. Consequently the economy of most developing countries has not been better off because of the poor development of marketing as the bedrock for improving the economic prospect of contemporary economies. However, the economy of developing countries to a large extent dictates the direction and tempo of marketing activities in these countries. Though, they remain ready markets for the developed countries' products, yet little or nothing is done to equate their height, if not completely but partially.

Developing countries are characterized by high birth and death rates, poor sanitation and health practices, poor housing, a high percentage of the population in agriculture, low per capita income, high rate of illiteracy, weak and uneven feelings of national cohesion, low status rating for women, poor technology, limited communication and transport facilities, predominantly exports of raw materials. Others include political instability, low savings and low net investment, military or feudal domination of state machinery, wealth in the hands of a very few, poor credit facilities, prevalence of non-monetized production, wealth sometimes exported to save in developed countries, civil unrests such as in the Niger Delta in Nigeria, and a host of others (Onah, 1979). Therefore countries with these kinds of peculiarities find it difficult to develop their marketing potentials. There are equally conditions in an economy that favour and compel the full application of marketing activities to achieve the objective of growth and profit, while there are conditions which do not favour, or make nonsense of it (Alatise, 1979). Therefore the essence of this study is to critically look at those immediate problems that inhibit marketing and also visualize those factors that give hope for improvement in the near future. The other sections of this paper include the following: theoretical conceptualization, importance of marketing to an economy, problems of marketing in developing economies, prospects of marketing in developing economies, conclusion and references.

In seeking to ensure that every country designs and implements the best method of achieving socio-economic transformation, marketing can be a veritable vehicle (Aigbiremolen and Aigbiremolen, 2004). Marketing can ensure that the values and environmental opportunities of an economy are taken into consideration with a view to achieving an integrated approach to development (Kinsey, 1988). The new marketing concept is a philosophy of business that states that the customer's want satisfaction is the economic and social justification for the existence of any company or organization. Therefore all companies activities and effort must be devoted towards achieving this objective, while still making a profit. The changing social and economic conditions in the technologically advanced countries were fundamental in the development and evolution of the marketing concept.

In spite of the fact that the concept evolved in the advance countries, the boundaries of marketing have extended remarkably to different frontiers. Generally, marketing strives to serve and satisfy human insatiable needs and wants. Therefore, marketing can be considered as a strategic factor in the economic structure of any society (either developed or developing). This is because it directly allocates resources and has a great impact on other aspects of economic and social life. Thus the link between marketing and growth and development of contemporary economies is quite obvious (Ogunsanya, 1999).

It is pertinent to note that the power of marketing is the same, but there exist qualitative and quantitative differences, depending on the particular situation at hand in a given country. For instance if there is severe inflation in a country and if left uncheck it will reduce the standard of living of the people as a result of the fall in their purchasing power. This situation could have a multiplier effect, because sales may drop, workers may equally be laid off, etc. Globally, the major role of marketing is to ensure the continuance in growth of economies and individual's standard of living (Baker, 1985). In developing economies marketing can act as a catalyst to institutionalize and propel economic growth and commercial life of the people. It can also lag behind it, depending on whether marketing is practice and used actively, or whether it is allowed to evolve in a passive fashion (Onwuchuruba, 1996).

During the oil boom period, the totality of the Nigeria economy expanded rapidly. However, one of the activities that lagged behind was marketing and its auxiliary branches. (This encompasses advertising and distributive trade). The trends and patterns of distributive trade in Nigeria reveal that, some indigenous firms embark on sales promotion, but had not been able to control the channels of distribution because of the chaos in the distributive structure. This lacks of control manifest itself in multiple pricing of products. A report on the survey of management training needs in Nigeria carried out by the centre for management development in 1975 revealed that marketing was one of the problem areas where remedial management effort should be intensified. Poor marketing generally is reflected in poor quality of products, inadequacy and shortages of essential products that would have improved the standard of living of the people (CBN, 2000). This ugly scenario helped to compound the problems of marketing in Nigeria before now.

2. Theoretical Conceptualization

Alatise as enunciated in Onah (1979) suggested when marketing is most necessary in an economy to include:

1)   **Free Supply of Goods:** When there are enough goods for consumers to buy. In other words when supply exceeds demand, warehouses for finished products as well as raw materials are near bursting at the seams.

2)   **Competitive Conditions**: The consumer has many choices almost equally well-matched brands. These are equal satisfaction in an economy, such that they do not have cause to complain about scarcity of products as a result of non availability of competing brands.

3)   **Competition at Distribution Points:** There is no bottleneck in the distribution chain, and all brands are well represented at all relevant distribution outlets in the entire market.

4) **High Margins for Marketing and Profits:** There are prospects for generating profit and marketing potentials from every business venture. Therefore the more you sell the more profit you make.

5) **Rapid Change in Technology and Consumer Taste:** This keeps marketing managers/executives as well as production managers on their toes to be innovative and creative. There is always the pressing need to sell off what you have today to avoid the obsolescence of tomorrow, and also try to beat your competitors in the game of being the first to offer the product of tomorrow, or at least a better product.

6) **Frequent Purchases by Consumer:** Marketing is most effective in mass consumable goods with quick and continual repeat purchases. It does not function well in an economy where the purchasing power of the people/consumers' is not reasonably appreciable because their demand pattern will be downwardly skewed.

7) **Good Opportunities for Product Differentiation:** This enables producers and sellers to woo and appeal to consumers and buyers in different ways that will give them satisfaction.

3. Importance of Marketing to an Economy

Olakunori and Ejionueme (1997) identified the importance of marketing to any economy, which was later up dated by Olakunori (2002) to include the following;

1) **Marketing Impact on People:** There is no doubt all over the world that marketing activities are affected by people's beliefs, attitudes, life styles, consumption pattern, purchase behaviour, income, etc. Marketers help organizations and businesses to develop products, promote, price and distribute them. Consumers' satisfaction or dissatisfaction with these products and activities will go a long way in determining their consumption behaviour. The importance of marketing can therefore be felt by the extent to which it affects the earlier mentioned demographic variables.

2) **Improved Quality of Life:** The activities performed by marketers and others in the economy of most countries, especially developed ones, help to identify and satisfy consumers' needs. This is because most consumers can always trace their knowledge and persuasion to patronize the products they feel much dependent on such marketing dominated stimuli as advertising, personal selling, E-commerce, sales promotion, etc, by presenting consumers with new, better and different brands and options of products which can meet their needs and helping them to easily obtain and safely enjoy these products. Marketers principally and functionally help to improve consumers' awareness and quality of life (Stapleton, 1984).

3) **Improved Quality of Product:** The importance of marketing is not being over emphased, because contemporary firms and multinationals have now seen the need to produce quality products. The business climate is quite different from what it used to be in the past. Competition has become more intense, such that only fast moving companies and multinationals are surviving the heat. This is because they have really capitalized on quality improvement in products to enhance the dynamic consumers' quest for goods and services. The advertising of own brands which began some years back is fast becoming vogue and compels manufacturers to improve on the quality of their products or be prepared to be extinct (Stapleton, 1984).

4) **Contribute to Gross National Product:** The strength of any economy is measured in terms of its ability to generate the required income within a given fiscal year or period. Thus such a country's GNP must appreciate overtime. Marketing is the pivot and life wire of any economy, because all other activities of an organization generate costs and only marketing activities bring in the much needed revenues (Ani, 1993). Available data showed that advanced countries accounted for 69.1% of world output while developing countries accounted 30.9%. Nigeria's trade was estimated at U.S. $47,346 million representing 0.8% of the emerging market share (CBN, 2005).

Table 1 indicates that the annual average growth rate of real GDP for Nigeria appreciated from 1.6% to 2.4% during the period 1980 to 1990 and 1990 to 1999. However, this performance falls short of Malaysia, Ghana and Egypt. Further breakdown of the sectoral growth shows that Nigeria still perform less than Egypt, Malaysia, and Kenya in Manufacturing; Malaysia and Ghana in agriculture; Malaysia, Egypt and Kenya in the services sub-sector. These are all indices that determine the performance of marketing activities in any economy.

Therefore any economy especially, developing that pays lip service to marketing is doing that at its peril.

Table 2 provides detailed analysis of the performance of world trade with particular attention to the marketing of goods and its contributing activities between 1990 and 2000 in the aforementioned regions. Findings clearly show that North America had 15.4% (1990) and 17.1% (2000) in export while its figure for import was 18.4% (1990) and 23.2% (2000). Western Europe had 48.7% (1990) and 39.6% (2000), its share of import was 48.7% (1990) and 39.6% (2000). Asia's figure for trade dealings in export was 21.8% (1990) and 26.7% (2000), while its import was 20.3% (1990) and 22.8% (2000). Latin America had 4.3% (1990) and 5.8% (2000) in export and its import involvement was 3.7% (1990) and 6% (2000). Developing Africa had the least in export and import for both years under review with the following percentages, 3.1% (1990), 2.3% (2000) all in export and 2.7% (1990) and 2.1% (2000) all in import. From the

performance of these economies, it can be concluded that advanced industrialized countries of North America, Western Europe and emerging economies of Latin America and Asia have impacted more on the marketing horizon. This is noticed in the trading dealings of each region. But for developing Africa it has not been a fair tale based on it' s decline between 1990 and 2000. This result is not far from the problems limiting marketing in developing economies.

5)   **Acceleration of Economic Growth:** Marketing encourages consumption by motivating people in a country to patronize goods produced to meet their identified needs. When people buy goods that are produced in a country, there is the tendency that producers will equally increase production to meet up with future demands. In so doing, marketing increases the tempo of economic activities, creates wealth for serious minded entrepreneurs and accelerates the economic growth of a nation. Thus, the more marketing philosophy is institutionalized in a country, the more developed and wealthy the country becomes, all things being equal.

6)   **Economic Resuscitation and Business Turn- Around:** The economy of most developing countries have suffered a lot, passing through one economic hardship to the next business upheaval, told and untold stories of business distress or economic recession to mention   a few. Marketing is the most meaningful means for achieving economic resuscitation and business turn-around strategy when such occur. By practically adopting the modern marketing philosophy (consumer satisfaction through integrative effort), fine-tuning its offerings to meet consumer's changing taste or counter competition, developing new and better products and exploiting new markets at home or abroad, industries and organization can achieve economic resuscitation and a more viable open widows for business prosperity. The recent financial crisis in USA and spreading to other parts of the world calls for proactive marketing techniques to bail the situation.

7)   **Provide Job Opportunities:** Marketing provides job opportunities to millions of people the world over. This is mostly experienced in well industrialized countries and emerging markets. Most people in these economies are engaged in private endeavours as investors and entrepreneurs. Some of these marketing opportunities are abound in areas like, advertising, retailing, wholesaling, transportation, communication, public relations, services, manufacturing, agents and brokers, to mention   a few. It is gratifying to note that the number of jobs being created by marketing has been increasing just as the development process of modern technology is a contributing factor. In Nigeria most of the school leavers (graduates precisely) are self employed, in one area of marketing or the other. The idea of working for the government only is now a thing of the past, though the jobs are equally scanty to meet the needs of the teeming unemployed.

4. Problems of Marketing in Developing Economies

There are series of constraints that hinder the performance of marketing in most developing countries. The experience of Nigeria and other Africa countries is worthy of note. These problems include the following;

1)   **Low Marketing Education:** A well informed and educated people tend to be prosperous investors and consumers. This is because they will imbibe the culture and tenets of marketing. But marketing education is still generally low in developing countries. Many policy makers and managers of large organizations still do not know what marketing is all about. Even when some people acquire higher degrees in the field of marketing and business administration, they come out doing the contrary, instead of practicing the true marketing concept or relationship marketing for the benefit of the society as a whole. In situations like that, marketing cannot contribute meaningfully to the development of these economies. Nigeria is an example of one of those countries suffering this fate. Most of the people, though educated, yet often compromise ethical marketing practices for worst alternatives such as sharp practices, unwholesome behaviour and smuggling that contribute less to gross total earnings of any country. For example a report on the survey of management training needs in Nigeria carried out in 1975 revealed that marketing was one of the problem areas where remedial management development effort should be intensified (CBN, 2000).

2)   **Preferences for Foreign Products**: Because of the development process of most African countries and their inability to produce most goods (especially technologically sophisticated products), they tend to prefer buying from the more industrialized countries. This makes the development process of local industries and commercial life of the people more impoverished. Developing countries constitute 71% of the world's population, but only contribute about 12% of the world's industrial production that often boost marketing in these economies. Why should this be the case, and who is to be blamed for the structural discrepancy and imbalance? What actions could these countries adopt to accelerate the pace of industrialization and development in order to boost the tempo of marketing (Mkpakan, 2004). It is generally felt that locally-made goods are only for the poor, uneducated, and those who are not fashionable, while the consumption of imported goods and services is taken as a status symbol for the elite and affluent in developing countries. Even when some countries products are of less quality when compared to similar local brands. This situation makes the growth of marketing and satisfaction of consumers locally difficult (Olakunori, 2002).

3)   **Low Patronage for Non-essential Products and Services**: The majority of the people in developing countries are poor, and their per capita income is below average. This makes it imperatively difficult for them to buy much of luxury

goods. Rather their purchases and expenditure are directed towards satisfying the basic needs for food, clothing, and accommodation. Non essential goods and services receive low patronage. Therefore low patronage for certain category of goods do not present attractive marketing opportunities that will ginger investment overture.

4) **High cost of production**: Marketing has suffered dearly in most developing countries because virtually all production techniques are imported from the developed world. The cost of acquiring equipment and other inputs used for production locally to boost marketing is sometimes extremely exhaubitant for the poor developing countries to buy and finance. To worsen matters, the bulk of African's production is mainly in agricultural products that contribute less to GNP or Net National income of their various economies. This is because these products are sold at lesser prices in the world market. The income generated from them can only buy little from all that is needed to encourage domestic production, in order to enhance marketing. Where it is possible to import the equipment, the production techniques and skillful manpower requirement is sometimes too expensive to bear, hence the high cost of some local products when compared to the same foreign brands. This reason strengthens consumer's preference for imported products and results to low demand for locally made goods. This affects the marketing potentials of the home industries and equally has an adverse effect on macro- marketing of developing countries.

5) **Inadequate Infrastructures**: Most developing countries are very poor, such that some of them depend on aids from abroad. There are cases of debt accrual and debt burden hugging on   some of the African countries that are yet to be paid. It invariable becomes difficult for some of them to provide the necessary infrastructures that would engender and propel smooth marketing scenario. Ethiopia, Somalia, Rwanda and a few other third world countries rely on aids from abroad to revamp their economies. The present situation where Power Holdings or National Electricity Power Authority (NEPA) is fond of giving epileptic and erratic power supply has made it difficult for businesses to function in Nigeria. Coupled with the poor road network and transport facilities, poor communication, distressed banks, malfunctioning ports and trade zones, among others. Apart from the deliberate embezzlement by   some top government officials, the government is yet to provide these infrastructures, and this has made it difficult for marketing activities to be performed effectively and efficiently. Moreover, the inadequacy and poor state of these infrastructures contribute to high cost of doing business in developing countries.

From table 3, it can be observed that amongst the six developing countries (Nigeria, Ghana, South Africa, Kenya, Egypt and Malaysia) described, Nigeria is the most starved in terms of availability of infrastructural   facilities and usage. The electricity consumption per capita is 85; telephone per 1000 persons is 4 and internet users ('000) to 100 persons. South Africa tops the list in terms of provisions of these facilities. With such poor level of infrastructural facilities the cost of marketing is always too high in developing countries, especially in Nigeria.   Foreign investors will also not be attracted to do business or invest in Nigeria and thus they will be more interested in countries where the state of low cost infrastructure generates competitive advantages. The inability or unwillingness of some developing countries to provide these necessary infrastructural facilities that will facilitate the performance of marketing in these economies is in itself a major problem worthy of note.

6) **Few Competitive Opportunities**: Lucrative competitive businesses are not much in developing countries. What are commonly found within African continent are peasant farmers, petty traders and negligible number of investors that are not engaged in multimillion dollars businesses. In Nigeria one can find competitive businesses mostly in the service industry, which contribute less than two percent of GDP (CBN, 2002). But in the manufacturing sector nothing can be said of it, because there is no competition. In most developed societies economic policies have long assumed that competition among businesses is the most efficient method of producing and marketing goods and services. Proponents of this philosophy contend that it results in maximum productivity and forces inefficient organizations and businesses to terminate their operations. It gives the consumer or buyer an opportunity to choose from several competing companies rather than buy from a monopolist, and stimulates creativity in seeking solutions to marketing problems especially in developing countries where such problems are more (CBN, 2000). But marketing in the true sense is usually at its best where and when there is real competition. Unfortunately, competition is at the lower ebb in developing countries, this might not be unconnected with the level of poverty and underdevelopment in the continent. But developed countries like USA, UK, Japan and emerging economies in Asia are competing amongst themselves in the manufacturing and supply of different types of products to newly found markets in sub-Saharan Africa. This is because they have the technology and financial backing.

7) **Over- Regulation of Business by Government:** Another major problem that has be-deviled the performance of marketing especially in Nigeria has been the issue of government regulations and interferences in the activities of businesses and corporate firms. For instance, the over regulation of the Nigeria economy especially between 1970-1985, including the enactment of the indigenization decree, which excludes foreign interest from certain investment activities as well as the existence of a complex bureaucratic requirements for direct and portfolio investment were among the major constraints that hindered the development of marketing climate and foreign investment inflow (Balogun, 2003). Sometimes in 2004 the then administration of Olusegun Obasanjo banned the importation of certain items into Nigeria,

but this is contrary to the tenets of free enterprises. Locally, state governors reserve special areas where businesses are not supposed to operate and if structures, housing corporate firms are erected there, they are bound to be demolished. In developing countries, it is usual to find governments promulgating laws to regulate the prices of consumables, fuel (as in the case of Nigeria), transport fares, exchange values of national currencies, accommodation etc. Nigeria is one of those countries that have passed through one form of regulation or deregulation to another depending on the political class that is in power. Instead of allowing the market forces of demand and supply to operate and determine how much consumers are to pay for the consumption of the goods and services.   The haste to get their economies developed and quickly catch up with advanced Nations often lead developing countries to over- regulate business activities and restrict the activities of free enterprise. This makes marketing difficult, since decisions cannot be taken from a purely economic perspective.

8) **Political Instability and Civil Unrest**: Rapid economic growth and development of marketing techniques cannot be achieved or attained in an environment of political and social instability or political hostility. Political stability implies an orderly system for a positive change in governance and peaceful co- existence amongst the citizenry that, poses a great challenge to marketing. Therefore, marketing does not thrive where there is political instability and insecurity or civil disturbances. The experience of most African countries like Liberia, Sudan, Rwanda, and Nigeria are typical examples of where the political climate and business environment had been in perpetual turbulence over the seat of power and who controls the resources (petroleum product) in the Niger Delta region. For Nigeria the issue in the Niger Delta gives cause to worry because most of the foreign investors and multi-nationals are thinking of relocating based on the continuous molestation and threat by militants, if nothing is done to salvage the situation. Table 4 shows the conflict rating of Nigeria, Ghana, South Africa, Kenya and Egypt. Amongst the five countries Nigeria has the highest figures especially after 1998. The above Situation reinforces uncertainty, instability, and increases the risk of doing business in Nigeria. Thus investment overtures become difficult in such localities or geographical areas and this undermines the performance of marketing.

5. Prospects of Marketing in Developing Economies

Despite the numerous problems confronting marketing in developing countries, there exists prospects and opportunities for future growth and development of marketing as the pivot of developing economies. These prospects are explained as follows;

1) **Growing Population**: Before multinational companies establish their hold in any country they expect to have a ready market for their products and services. No business flourishes where people are not living or where it is not habitable by people. Developed countries with their small population and saturated domestic markets prefer marketing their products and services to emerging markets in developing countries. Nigeria being one of the most populous nations (about 120 million people) in Africa is a ready market for both domestic products and foreign brands. This is because marketing does not operate in a vacuum but requires a large population of people with the willingness to do business and patronize businesses. Therefore the high and growing population of developing countries is an attractive incentive, as they represent large potential markets.

2) **Absence of Competition and Large Unexplored Markets**: By virtue of their large populations and underdevelopment, developing countries have large markets that are not yet served or are partially served. Thus they are not as saturated as those of developed countries. Hence, there is hardly any form of intensive competition especially amongst serious manufacturers like "**ANAMCO**" a motor manufacturing assembly in Nigeria. The economies of these nations hold great opportunities for innovators, investors and marketers to enjoy booms in their markets with much challenge from competitors within and outside.

3) **Attractive Government Incentives**: Trade policies in most developing countries are becoming quite favourable to both local and foreign investors. These incentives include profit tax holidays, reduced or even free customs and excise duties, liberalization of immigration and profit repatriation laws for foreign investors.   There are also improvements in infrastructural facilities that will ginger the performance of marketing in these economies. According to Pearce (1998) liberalization encourages the adoption of policies that promote the greatest possible use of market forces and competition to coordinate both marketing and economic activities.

4) **Growing Affluence**: Quite a large number of the consumers in developing countries are becoming affluent. This will enable them to have reasonable discretionary income and purchasing power. This means that a growing number of the consumers in many developing countries can now afford luxuries and other products they could not purchase in the time past. In Nigeria the business climate is expected to improve tremendously with the President Musa Yar Adua's seven points agenda, the people will become more empowered and their purchasing power will be enhanced for both consumption and investment purposes. The government has equally taken the issue of workers/staff remuneration seriously, such that salaries now come as at when due and the take home package of most developing countries these days is quite commendable when compared to what it was few years back. Available data from the Nigeria living Standard survey conducted in 2003/2004 indicated that the incidence of poverty exhibited a downward trend. It declined

from 70% in 2000 to 54.4% in 2004 and it is expected to decline more in the years ahead (CBN, 2005). This of course presents brighter prospects for marketing.

5)   **Availability of Cheap Production Inputs**: Most developing countries are endowed with abundant human and material resources that are yet untapped. For example, according to CBN (2000) Nigeria remains endowed with abundant natural resources, good weather conditions and a large population. These will be readily handy for companies and businesses to exploit.   Despite the high level of poverty and low exchange values of the national currencies of developing countries, labour and raw materials or inputs are often found to be cheap and it is envisaged that in the nearest future it will be cheaper because of better opportunities and more goods will be produced for consumption. The absence of serious competition also makes it easy to source these production inputs and reach different market segments. This is why most multinationals are more marketable and profitable in developing countries than their industrialized coutries.

6)   **Rapid Economic Development**: Quoting Olakunori (2002), the economies of developing nations are growing rapidly as a result of the efforts being made by their various governments and the developmental agencies of the United Nations towards this direction. This results to income re-distribution and increased purchasing power and discretionary income are also enhanced. Thus, it is expected that the demand for products to satisfy higher order needs will increase and the general atmosphere of business in the continent will become more conducive and all these mean well for marketing in sub-Saharan Africa and Nigeria in particular.

6. Conclusion

Despite the numerous problems facing marketing in developing countries, there are good prospects for the future, hence marketing is the answer to the underdevelopment of developing countries. When adopted and practiced, marketing will help to develop appropriate technologies as developing nations provide for the needs of the people and enhance their standard of living, create job opportunities for the unemployed, wealth for entrepreneurs, a means towards affording education and enjoyment of leisure.

Therefore the government and individuals are encouraged to join hands and see to the development and appreciation of marketing in all the economies of developing countries.

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APPENDIX 1

Table 1. Growth Rate of GDP for selected Countries (%)

Country	GDP		Agriculture		Manufacturing		Services	
	1980 to 1990	1990 to 1999	1980 to 1990	1990 to 1999	1980 to 1990	1990 to 1999	1980 to 1990	1990 to 1999
Nigeria	1.6	2.4	3.3	2.9	0.7	2.0	3.7	2.8
Ghana	3.0	4.3	1.0	3.4	-	-0.3	2.9	1.9
South Africa	1.0	1.9	2.9	1.0	1.1	1.1	2.4	2.4
Kenya	4.2	2.2	3.3	1.4	4.9	2.4	4.9	3.5
Egypt	5.4	4.4	-1.1	1.1	-0.2	5.3	0.7	5.8
Malaysia	5.3	7.3	3.4	0.2	9.3	9.7	4.9	8.0

Source: CBN, 2003

APPENDIX 2

Table 2. Regional Shares of World Merchandise Trade 1990 -2000

Region	1990 Exports (%)	2000 Exports (%)	1990 Imports (%)	2000 Imports (%)
North America	15.4	17.1	18.4	23.2
Western Europe	48.3	39.5	48.7	39.6
Asia	21.8	26.7	20.3	22.8
Latin America	4.3	5.8	3.7	6.0
Africa	3.1	2.3	2.7	2.1

Source: (1) WTO International Trade Statistics 2001.

(2) African Development Bank Report 2004.

APPENDIX 3

Table 3. Infrastructure of Nigeria and other Emerging Markets, 1999.

Infrastructure				
Country	Electricity Consumption per Capita	Telephone per 1000 Persons	Users ('000)	Classification
Nigeria	85	4	100	Severely indebted
Ghana	289	8	20	Moderately indebted
South Africa	3,832	125	1,820	Less indebted
Kenya	129	10	35	Moderately indebted
Egypt	861	75	200	Les indebted
Malaysia	2,554	203	1500	Moderately indebted

Source: World Bank 2001, and World Development Indicators, 2001.

APPENDIX 4

Table 4. Conflict Rating of Five Countries in Sub-Saharan Africa.

Country	Conflicts		
	1998	2000	2001
Nigeria	21.4	44.0	11.3
Ghana	2.4	3.8	0.3
South Africa	29.8	41.4	2.2
Kenya	48.5	0.0	2.9
Egypt	0	9.2	3.4

Source: CBN, 2003.

Analysis of Utilization of FDI in the Yangtze River Delta

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Abstract

Since 1990s, FDI are booming in china gradually and become essential impetus in the development of world's economy and economy in developing countries especially. The Yangtze River Delta is an important region for foreign direct investment, including two provinces and shanghai city. FDI contributes a lot to the economic development in Yangtze River Delta. However, there exist many problems, for example, uneven development and scales of FDI in different cities, imbalanced development in three industries etc. In this paper, I analyze the problems and come up with resolutions to improve the FDI environment and its utilization for more economic boost to this region and China as a whole.

Keywords: The Yangtze River Delta, FDI

Foreign direct investment (FDI) is defined as "A company from one country obtains controlling interest in a (new or existing) firm in another country, and then operates that firm as a part of the multinational business of the investing firm. FDI is a momentum for economic growth. It plays an extraordinary and growing role in global business. It can provide a firm with new markets and marketing channels, cheaper production facilities, access to new technology, products, skills and financing. Since 1990s FDI developed very fast in China and becoming an important factor in the economic development. According to the United Nations Conference on Trade and Development, since 2002, the inflow of FDI in China has toped to more than US$ 50 billion, overtaking the United States as the largest recipient of FDI inflows in the world. There is little doubt that FDI has been a significant part of China's economy especially in the manufacturing industries. Yangtze River Delta right now is an area with the fastest speed in economic development and greatest potential. And FDI is a great contribution to its development. However, a lot of problems occurred in the development of FDI. I will list some problems and analyze them in this paper for a better utilization of FDI in this region so as to make a greater contribution to China's economy and the world's economy as a whole.

1. Current situation of FDI in Yangtze River Delta

1.1 Development of FDI in China and its tendency

Since the reform and opening up, foreign investment flowed into China. After 1990, FDI grew rapidly and 1992 and 1993 are the landmark of the development of FDI. In 1992, it increased from $5 million to $11.5 million and in 1993 this number mounted to $27 million, a multifold increase. The investment region extended from coastal and center cities to the inner land and the area expanded from state-owned enterprises to private companies, from manufacturing industry to service industry and the infrastructure construction. In 2006, FDI in China developed stably. There are 41,485 new approved foreign capital companies, of which the actually absorbed foreign investment $69.47billion. As a result, the local economy was largely promoted. China's GDP increases approximately at a rate of 9%, of which 1%-2% has to be attributed to foreign investment. China's actual use of foreign direct investment (FDI) had cumulatively exceeded 750 billion U.S. dollars by the end of June this year since the beginning of its opening-up policy in 1978, according to a senior commerce official. Vice Minister of Commerce Wei Jianguo said the country had approved the establishment of 610,000 foreign-funded enterprises by the end of June this year. In the first half of 2007, exports of foreign-funded enterprises accounted for 57 percent of the nation's total, said Wei at a forum on the social responsibility of foreign-funded enterprises. Currently, more than 28 million people work in these enterprises, or about 10 percent of the employed population in cities and towns of the country. China actually used 36.93 billion dollars in FDI in the first seven months of 2007, a growth of 12.92 percent year-on-year, according to the Ministry of Commerce.

However, despite the large scale of FDI, its development in different regions is uneven. The eastern China is the main

region foreign investors choose, the volume of the FDI in the west area is relatively low with a high speed of development. In the first half of 2007, $28.5 billion flew into this part, accounting nearly 90% of the total in the whole country. The west area absorbed $1.5 billion from foreign investors, a 52% increase of the same period of last year. In the middle area, the number reached $1.9 billion which increase 6% compared to last year. In the future, there will be more and more investment from multinationals instead of from small and media size companies of HK, Macao and Taiwan.

1.2 Development of FDI in the Yangtze River Delta

Yangtze River Delta is an economic region compromised by Shanghai, Jiangsu and Zhejiang province, including Shanghai, Nanjing, Wuxi, Changzhou, Nantong, Yangzhou, Zhenjiang, Taizhou, Hangzhou, Ningbo, Jiaxing, Huzhou, Shaoxing, Zhoushan 15 cities. Since 1990s, FDI in Yangtze River Delta developed very fast. Take Shanghai for example, the actually absorbed foreign investment was $177million and in 2006 it amounted to $7.107billion, almost 71 times of that in 1990.(See Table one). The investment distribution in Yangtze River Delta appears like that: Shanghai is in the center and FDI descend through the cities along Huning railway and Huhang railway. The absorbed foreign investment in Shanghai, Suzhou, Wuxi cities accounted 55% of that in the whole region and Shanghai played a leading role in it. In 2004, shanghai attracted $6.541 billion FDI which is number one in the 15 cities.

Major foreign investors in the Yangtze River Delta include General Motors, Shell, Matsushita, Exxon, Sony, Siemens, and Volvo etc. many of them have even set up their regional headquarters here, such as Siemens, AMD and General Electric. Foreign investment in Yangtze River Delta is mainly engaged in manufacturing activities, including the manufacturing of computers, mechanical and electrical products, hardware and chemical product etc. however, foreign investment has increasingly been channeled into services industry in recent years. Given China's WTO commitment to further liberalize its service sector, an increasing share of FDI is expected to go into the service sectors in the coming years.

1.3 The reason why FDI thrives in Yangtze River Delta

Yangtze River Delta is an economic zone with the largest population of 350 million and the most developed economy in China. Its importance also lies on its geographic advantage: it is both the hub of water communication and gold coast in China with 1000km of coastal line and 600km inland navigation line along which are located Shanghai, Ningbo, Zhoushan, Nanjing and Zhengjiang etc. From there, vessels can reach the ports of over 160 countries and areas with Shanghai as the center of the modernized network. The main agriculture products cover the half of the national products and the markets are quite potential. The network system in this region is also in the leading place in China. What's more, The Yangtze River Delta has a relatively stronger cluster of higher education institutions turning out a greater local supply of quality workers, prevailing as the base of R&D in the hi-tech industry .The development of Yangtze River Delta will also give the credit to Shanghai's Financial Radiation. Besides financial aspect, its influence covers large areas including policies, the way the organizations act. While Shanghai has more developed financial and trading services, its leading role is irreplaceable.

2. Some new problems

2.1 problems occurred in the development

2.1.1 Uneven development in different cities of this region

Due to the distinction of investment environment and competitive edge, FDI in Yangtze River Delta is unevenly distributed. The population in Shanghai and Suzhou cities only account for 25% of the total, the land area only 15%. But the accumulative FDI of these tow cities has been up to 58%. They are the only two that have accumulative FDI surpassing 30 billion US dollars. The main cities that attracted high FDI are Wuxi, Nnajing, Ningbo, Hangzhou, Changzhou, Zhenjiang, Nantong and the rest shared relatively low ratio. In 2004, the utilized FDI reached 24 billion dollars of which Jiangsu province, Shanghai city, Zhejiang province shared respectively 47.5%, 27%, 25.5%. The absorbed FDI of Shanghai exceeds that of Zhejiang province and FDI of Jiangsu province almost twice of that in Zhejiang. There exists large gap between different cities in Yangtze River Delta.

This gap was generated by two reasons: first, due to the differences of city scale, geographic situation, and relative industry etc, the orientation of foreign capital that flowed to is too simple; second, some government officials only concern about the political record and pursue the quantity of investment instead of the quality. There are too many overlaps in the so called "pillar industry". Many cities are eager to bring in more investment on electronic, chemical engineering, and medicine industry and ignore the different situations of these cities. For example, there are 11 cities picking automobile industry and 8 cities choosing petrfaction industry. This kind of disorderly development will lead to tremendous waste of resources and imbalanced investment proportion.

Another factor that caused the gap is that different cities adopt different economic developing models. For example, Zhejiang used to spur its economy in nongovernmental economic model. Most part of its GDP is from private

enterprises Jiangsu and Zhejiang have the largest number of private enterprises in China, and according to a survey of Jiangsu private enterprises conducted by HKTDC in 2003, 56% of the responding private enterprises considered overseas market expansion as their top development target, while 8% said their top priority was listing. As the demand caused by economic development and increasing international economic confliction, the disadvantage of purely relying on private enterprises has appeared in a daily basis. Right now, Zhejiang province started attracting foreign investment to boost its economy. As a result, the ratio has ascended gradually.

2.1.2 Imbalanced development in different industries

As changed taking place in global industries, the tendency of FDI is turning from labor intensive industry into capital and technology intensive industry, from manufacturing industry into tertiary industry that mainly rely on service and new and high-tech industry as well as infrastructure construction. Apparently, investment in Yangtze River Delta focus on the second industry, and especially manufacturing industry, of which the electronic and communication equipment manufactures are the number one. It accounted for 15.4% of the total manufacturing industry that foreign investment aimed at. From these statistics, the focal point of investment is on the capital and technology intensive industry, especially processing and packing industry in the labor intensive industry.

The ratio of agriculture industry account little in the whole investment. But under the encouragement of our country, there is much increase in utilization of agriculture and infrastructure construction. This demonstrates that some foreign investors throw their eyes to basic industry and infrastructure construction. The investment of tertiary industry centered in tourism and hotels. In recent years, as the fast development of real estate, the ratio of investment in this area ascended slightly. On the whole, investment of tertiary industry in the last 20 years has fallen.

2.1.3 Resource shortages

The lack of resources made Yangtze River Delta not that desirable and attractive. Right now, the extensive economic growth mode featured high input, large consumption, high growth and low benefit is no longer suitable for today's society. A shortage of electricity, land, water, and technicians has ringed the alarm to this region.

Electricity shortage. Since 2003, the amount of the limited electricity power used have reached 5.6 billion kilowatt which is almost the number of that in 2002. That set a new historical record and companies had to cut production because of this.

Land shortage. More and more development zone to some extend spurred the economic development but on the other side lead to the decreasing arable land.

Lack of Technicians. Human resources especially the lack of advanced technicians was the problem facing this region. For instance, in Wuxi, there was a shortage of technicians totaled over ten thousand. A survey covering more than 700 foreign companies and joint ventures gave this result.

Resources shortages significantly influence the investment environment of Yangtze River Delta and had some side effect to attract investment, like moving the confidence of foreign investors' investment plan. Experts said, the power shortage will speed up the shift of foreign capitals.

2.2 Problems in all these places

2.2.1 "People problem"

We're now faced with an era in which globalization deepens with each passing day. And the competition between nations has been the competition among talented people. Lots of managers announced that "our people are our biggest asset" In a knowledge economy we need to attract and hold on to people who know a lot. In such cases, attracting talented people to work in this region in a way means attracting more foreign investment. Although the supply of labor resources surpasses the demand in the job market in China, and we have the advantage of cheap labor, but obviously, we are lack of talents. Despite the relatively advanced technology and education in Yangtze River Delta., it is still hard to meet the demand of the highly developing economy in China, especially the demand for technology talents. By the same token, the rapid speed of the development of FDI requires a large number of professional technology talents. The school education, however, can not meet the requirement of labor market for different talents, not even the demand of foreign investors. Therefore, the exploration of labor resources is the bottleneck for China to transform it economic developing model and to achieve sustainable development.

2.2.2 Approval system needs to be improved

In administration, some departments have not held the belief to serve the people and barricade too much approval procedure which made it very complicated to approve a program.

When they passed through the approval procedure, all the business opportunities have gone. There existed some management problems. The departments that have the power will fight with each other for the programs that are in their interests, while troubles came, nobody would take the responsibility. For such reason, administration departments have

very low efficiency, and companies have more challenges to conquer. All of these lead to bad situation for investment attraction and promotion and make it even harder to develop FDI in Yangtze River Delta. Hence, the entry barriers of various service sectors must to be lowered for foreign investors and we should improve the approval system.

3. Solutions for the problems mentioned above

3.1 Balancing the interregional development of FDI

Adjust interregional Economic Structure to balance the development of FDI in different cities. Suzhou, Shanghai Wuxi should stick to the opening up policy, taking the advantage of foreign capitals to promote the capital-intensive and technology- intensive industry. In Shanghai Pudong new area, Suzhou Industrial Park as well as all kinds of national economic & development area, the environment and equipment should be improved. We also need to expand our investment scale to improve the software and hardware environment. The rest of the place is better to make full use of their local resources and advantage, promoting innovation to attract more foreign capitals. Private enterprises need to be innovative in systems and management as well as in technology, said Zong Qinghou, chairman of Wahaha Group. Zhejiang should take the advantage of their nongovernmental economy to bring in more FDI through private companies. This is not only an innovation of FDI development model but also a model for economic development. Through attracting foreign capitals with their local resources, we can combine the two markets together and boost this kind of mixed economy.

3.2 Attract more investment to the first and tertiary industry

The government should lead the investment orientation and promote construction of rural area. Although our country pays great attention to the rural area construction, the fixed asset investment in Yangtze River Delta has not been the stake in investors' hand. Hence, the agriculture industry needs more capital to develop. Jiangsu and Zhejiang provinces have large land areas and it will be significant to boost agriculture industry.

Government should encourage the development of the service industry because the service industry together with the manufacturing industry now serves as an engine for the region's overall economic growth. Yangtze River Delta should take the opportunity of macro control in China, and transform the economic growth pattern, optimizing the economic structure and bringing about a virtuous cycle of the national economy and the environment. At the same time, the investment structure of second industry need to be adjusted. To achieve this, we should strengthen the innovation and add more value to the product. Moreover, Shanghai city and the two provinces should avoid the overlaps of the industry structure and shape differentiation competition so that to be competitive in the world market.

3.3 transform the economic growth model

The problem of resources shortages that mention above alarms us that we need to change our economic growth model for a better utilization of energy resources. In 2006, China started to alter its old extensive growth model to a more intensive one. The Chinese leadership has realized that China's past development norm is physically unsustainable, and politically and socially undesirable. The basic features of Intensive development model are increasing economic growth through improving the quality of material and work efficiency with a relatively low consumption and cost. The transformation of economic growth model will at the same time cushion us from the effect of resources shortage. Easing the urgent problems of the resources shortage in turn will spur another round of FDI development. What's more, pay attention to technology is in some way saving energy. We should improve the energy efficiency and use renewable energy. This solution does not only help to create a desirable environment for FDI development, but also do good to our country's economic growth. Apparently, our government has concerned about energy problems, but there is still a long way to go to achieve this.

3.4 Cultivate professionals in different areas

With an increasing number of foreign enterprises making their way into Chinese market the "people issue", especially the management of local and foreign staff, have been brought to the forefront more than ever before. For most foreign companies operating in China, it is not surprising that they would like to acquire professional services that align with international practice and their parent companies' standards. These foreign companies would also appreciate a service provider who is familiar with the China market. As a result, there is a need for a large amount of talents that are proficient in different areas. They may be specialists in laws, finances, English, international trading etc or people who have professional knowledge in several areas. Cultivating such kind of talents is now the task facing this region for its better development. We can set up relevant course in universities that provide training course to different kinds of people for the practical use in daily life. Sufficient speculative knowledge plus experience will make a specialist in one area. What's more, bringing in more technology is also crucial. We should associate technology with innovation and establish an open, fair and orderly labor market to meet the need of the fast development of Yangtze River Delta. During the past 30 years since China's reform and opening up, there are an increasing number of students' studies aboard. Students leaving this region for west countries accounts for a large proportion. If we can reduce the phenomenon of brain drain, seemingly, the "people problem" will be reduced.

3.5 Improve the hardware and software environment to attract foreign investment

While governments enlarge the input into basic industry and infrastructure construction to improve the hardware environment, we have to pay great attention to software environment. We need to improve the political and legal environment for foreign investment, and to enhance legal administration level. Government should further simplify the examination and approval procedures for foreign investment and adopt a standardized examination and approval system; reinforce our sense of legality, try to be open, just and transparent, and establish an incorruptible, industrious, pragmatic and effective government, creating a good administrative environment for foreign investment. Besides, we should maintain and improve an open and fair market environment. We should combine this with the current work of rectifying and standardizing the order of market economy, prohibit firmly the improper collecting fees from foreign companies as well as improper inspection and fine of them. Measures should be taken to destroy local protectionism and industrial monopoly. We should also enhance the lawful measures to protect the intellectual property right and take strong actions against illegal piracy, therefore, establish an open, unified and fair market environment, further perfect the complaining mechanism of foreign-funded and protect the legal rights of foreign merchants according to law.

4. Conclusion

Yangtze River Delta is a major destination for foreign direct investment (FDI) and is becoming increasingly popular among foreign investors in recent years .So far, Hong Kong is the largest source of FDI in this region, followed by Taiwan, Japan, and the US. However, there are more and more problems in Yangtze River Delta and are becoming more apparent. Some part of administration apartments and the environment obviously are holding back its development. This paper focus on the problems exists in the process of FDI development and I gave the analysis as well as corresponding solutions. The five problems are: imbalanced development of FDI in this region, and three industries, resources shortages, approval system in government administration and people problems. What we need to do is try to improve the investment environment and strength the whole region's competitiveness, balancing the interregional development problems as well as handling the bumpy thing on the road of approval. Only through this way, we can reach the goal of developing FDI in Yangtze River Delta, coordinating social and ecology problems and at last achieve the sustainable development of our nation.

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Table 1. Foreign Direct Investment in Main Years

Indicators	1990	2000	2005	2006
Number of Signed Contracts (item)	203	1 814	4 091	4 061
# Joint Ventures	161	441	601	540
Cooperative Ventures	12	226	44	27
Sole-foreign Funded Enterprises	30	1 146	3 442	3 486
Contracted Foreign Capital (100 million USD)	2.14	63.90	138.33	145.74
# Joint Ventures	1.10	13.86	19.62	24.27
Cooperative Ventures	0.38	5.86	2.66	2.86
Sole-foreign Funded Enterprises	0.66	44.14	109.47	117.37
Foreign Investment Actually Absorbed (100 million USD)	1.77	31.60	68.50	71.07
# Joint Ventures	1.08	12.94	14.25	15.84
Cooperative Ventures	0.67	2.99	1.62	1.86
Sole-foreign Funded Enterprises	0.02	15.67	45.87	53.30
Note: Data in this table are provided by Shanghai Foreign Investment Commission. (Same as follows).				

Motivations and Ways for Multi-National Corporation's Tax Planning

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Abstract

Taxes can cause a decrease of cash flows of multi-national corporations. Therefore, to take advantages of countries' different tax systems and adopt kinds of measures to reduce taxes is meaningful for multi-national corporations increasing the cash flow and improving the competitiveness.

Keywords: Multi-national corporation, Tax planning

1. Motivations for multi-national corporations tax planning

To actualize the maximum net income or the minimum taxes is the subjective motivation for multi- national corporations performing international tax planning. Tax differences of countries serve as the objective reason for multi-national corporations performing international tax planning. Tax differences mainly include:

1.1 Different definitions of taxpayer cause differences of taxes

Concerning the tax liability, there are two fundamental principles in the world. The first is the principle of personality that a person should pay taxes to the country where he or she lives or a person should pay taxes to the country that he or she belongs to. The second is the principle of territoriality that a person should pay taxes to the country where he or she gets the income or wealth. If the tax jurisdiction is based on the principle of territoriality, taxes are merely imposed on all taxable incomes from the country. If the tax jurisdiction is based on the principle of personality, taxes are imposed on taxpayers' all taxable incomes from the world. Countries follow different principles and may disagree with the definition of taxpayer, which generates lots of chances for international tax planning.

1.2 Countries impose different taxations

Most countries impose income taxes on individuals and corporate legal persons but treat the transfer income of properties differently. For example, some countries do not impose taxes on the transfer income of properties. Even if impose income taxes on individuals and corporations, countries may adopt different rates. For example, some countries adopt the proportional tax rate and some the excess progressive of tax rate. Therefore, tax burden differs among countries.

1.3 Different tax bases and tax rates

For taxpayers, different countries regulate similarly on the same tax type. But for tax bases, countries regulate differently. As a result, the same tax type has a narrow or wide tax base in different countries. Taxpayers have to pay taxes differently. For the income tax, countries regulate different rates. The rate in some countries reaches 50% and that in certain countries is less than 30%. All these facts serve as preconditions for tax planning.

1.4 Different regulations on double taxation

International double taxation means two or more countries impose same or similar taxes on the same taxpayer or different taxpayers for same tax type during certain period. In order to reduce the negative effects of international double taxation on taxpayers, all countries take some measures, such as the popular tax credit method and tax exemption method. However, because of the different methods adopted by countries, chances of decreasing taxes are various.

In addition, differences of anti-tax avoidance methods, tax preferences, tax laws, and other non-tax aspects in different countries serve as chances for multi-national corporations performing tax planning.

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2. Main methods for multi-national corporations tax planning

2.1 Avoid being a residential company of high-tax countries

If a multi-national corporation is regarded as a residential company by one country, it must take a comprehensive tax liability to the country. In other words, the corporation should pay taxes for its income from the world. Therefore, the residential company in a high-tax country has to pay higher taxes than that in a low-tax country. Multi-national corporations can reduce its international taxes by avoiding being a residential company of high-tax country. Because different countries have different identification standards for a residential company, taxpayers should take different measures. For example, American tax law regulates that all companies registered by America Federal or State laws are the "legal residents" of America, no matter whether the management institutions locate in America or not, and no matter whom the stock right belongs to. Therefore, in order to pay less tax in America, the only way is to avoid being a "legal resident" of America.

2.2 Select favorable foreign operations

As a multi-national corporation determines to invest in foreign countries or start businesses, it has two kinds of operations: build a permanent establishment or form a child company. To form a branch agency has five advantages in the tax aspect as follow. (1) The branch is merely a subsidiary unit or agency of the general corporation outside. The complicated register procedures in the host country are not necessary. And it does not pay the capital register tax and the stamp tax. (2) The general corporation and the branch belong to the same legal economic entity. As the branch pays interests and franchise fees to the general corporation, it does not pay provision for income tax to the host country. (3) The branch is not an independent legal entity. It is not necessary for the branch disclosing more financial information. Therefore, the branch can escape from the supervision of the host country easily. (4) According to the international tax practice, branches in foreign countries can use the losses to balance out the profits of the general corporation in the world. At the very beginning, branches are always in losses. Using the losses to balance out the profits of the general corporation can reduce the taxes of the general corporation in its residential country. (5) Avoid the international double taxation. Advantages of a child company include three aspects as follow. (1) The child company is a "legal resident", which can appreciate all preferences listed in tax convertions signed by the host country and other countries. The branch is a "non-legal resident", which can not appreciate the same preferences. (2) If the country where the mother company lives apples the tax exemption or indirect tax exemption, the double taxation issue can be avoided effectively. (3) The child company can appreciate the tax deferral. The multi-national corporation should make specific analysis based on practical conditions and makes choices.

2.3 Perform tax avoidance by a transfer pricing mechanism

The essence of multi-national corporations performing tax avoidance by transfer pricing is to transfer the profits from a high-tax area to a low-tax area. Main methods are: (1) Adjust child companies' product costs by transactions. (2) Adjust child companies' product costs by materials and parts. (3) Adjust and control profits by trading fixed assets, such as machines and equipments. (4) Adjust and control profits by supplying technologies, management, and ads. (5) Adjust and control profits by transferring virtual assets, usually in form of franchise fees. (6) Adjust and control profits by renting, usually in form of setting prices internally. (7) Adjust and control profits by loans. Control the flow of profits by controlling the interest rate of loans. (8) Adjust and control profits by management fees. (9) Adjust and control profits by cash flows. Produce bad debts in purpose and increase or decrease expenses in order to transfer profits.

2.4 Take advantages over international tax conventions

In order to avoid the international double taxation, relevant countries usually choose to sign bilateral conventions. In these conventions, contracting parties will make restraints or concessions. For example, decrease the rate of withholding tax imposed by the source country for the income gained there. Apply tax abatement or tax exemption for some items. Only the residents of contracting countries can appreciate these preferences. However, the residents of non-contracting countries can get benefits from the tax convention signed by the two countries by a delicate arrangement. For example, Japan and America sign a mutual preferential tax convention. Japanese banks can appreciate a 50% discount of rate of withholding tax as they get interests of loans from American residents. If similar businesses happen between a Chinese bank and an American company, namely the Chinese bank offering loans for the American company, the Chinese bank can entrust a Japanese bank to collect the interests from the American company since there is no similar regulations between China and America. By this way, the Chinese bank can pay less tax. See to the Figure 1 as follow.

2.5 Actualize tax avoidance by international tax shelters

Firstly form a special firm. Then transfer wealth, profits, and other incomes to the firm by virtual intermediary businesses and a transfer pricing mechanism, which can reduce or avoid the high taxes of the mother corporation or other child companies in the host countries. In general, by forming a trade company, a stock controlling company, a financial company, or a trust company in tax shelters, the multi-national corporation transfer its incomes gained in other areas to the company in international tax shelters, achieving the goal of reducing taxes or tax exemption.

2.6 Actualize tax avoidance by tax deferral

The tax deferral means the country that uses the resident jurisdiction collects taxes by the principle of cash payment as its residential companies gets profits from foreign child companies. In other words, only when the mother company receives dividends from child companies, can it pay taxes to the country where it lives. Therefore, the mother company can delay the repatriation of profits by all means (such as transferring profits to the child company in tax shelters). Then, it can occupy these funds with no consideration.

2.7 Reverse tax avoidance

In common international tax avoidance, taxpayers usually choose to avoid entering high-tax areas and live in low-tax areas as much as possible. But in practice, taxpayers may choose to operate in high-tax areas in order to get some interests. That is the so-called reverse tax avoidance. The ultimate target of reverse tax avoidance is to gain more benefits by paying more taxes superficially. For example, due to the low-tax countries' exchange control, transfer the income to the mother company that lives in a high-tax country by transfer pricing. Or, if a country sets higher tax rates and the multi-national taxpayer predicts a war in the future there, the multi-national corporation will collect investments and profits (although tax costs are higher) as soon as possible in order to avoid more losses.

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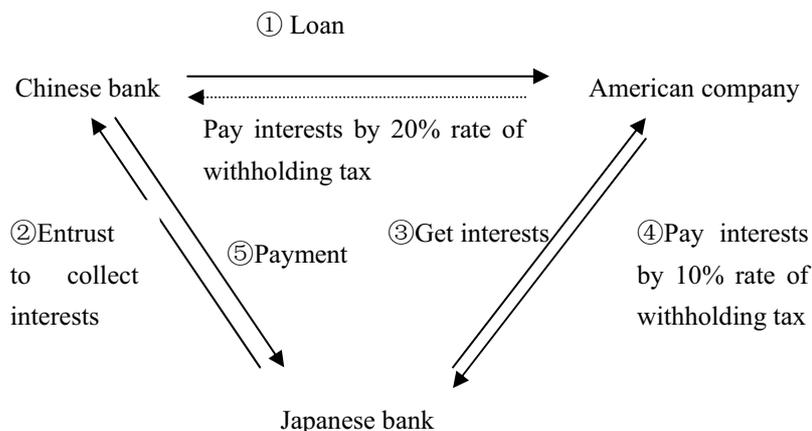
Figure 1.

Changing Pragmatics of the Indian Pharmaceutical Industry

in the Pre and Post TRIPS Period

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Abstract

The agreement on Trade-Related Aspects of Intellectual Property-Rights (TRIPS) is an international treaty by the World Trade Organisation (WTO) which sets down minimum standards for most form of intellectual property (IP) regulation within all member countries of the World Trade Organization. As a result of TRIPS the Pharmaceutical industry has witnessed significant changes. There has been a paradigm shift in the policies and programs governing Indian pharmaceutical industry. Against this background, the paper tries to study the Post TRIPS Patenting, Exports and R& D Scenario in Pharmaceutical Industry of India. The study uses primary as well as secondary data to visualize the changes in the pharmaceutical industry in post-TRIPS period. The results of the study highlight that the new patent regime has encouraged innovation and greater investment in R&D. Patents are the most efficacious and indispensable tool to secure strategic competitive advantage in the market. The impact of TRIPS compliance is becoming increasingly visible, on the pharmaceutical industry in India.

Keywords: Trade related aspects of intellectual property rights, General agreement on trade and tariff, World trade organisation, Intellectual property

1. Introduction

The Indian pharmaceutical has expanded drastically in the last two decades. The Pharmaceutical and Chemical industry in India is an extremely fragmented market with severe price competition and government price control. The Pharmaceutical industry in India meets around 70% of the country's demand for bulk drugs, drug intermediates, pharmaceutical formulations, chemicals, tablets, capsules, orals and injectibles. There are approximately 250 large units and about 8000 Small Scale Units, which form the core of the pharmaceutical industry in India. The Indian pharmaceutical industry, which had little technological capabilities to manufacture modern drugs locally in the 1950s, has emerged technologically as the most dynamic manufacturing segment in the Indian economy in the 1990s (Kumar and Pradhan 2003). When the product patents on Pharmaceutical products were abolished in India in 1972, the Indian industry was not a significant player either in the domestic or the overseas market. It was largely confining its activities to reverse engineering and thriving on developing new processes for the existing products and catered mostly to the domestic market.

In the last two decades, the Pharmaceutical companies have gained a firm footing in the market, their share of the domestic market has risen from 10 per cent in the early 1970s to over 80 per cent now. India has also emerged as a major supplier of drugs to the international markets, particularly over the past decade. A major factor that contributed to the rapid growth of the Pharmaceutical industry is that through skilful innovations in production processes, the Indian companies could make cheap copies of patented drugs and sell them at very low prices compared to anywhere else in the world. However, this favourable business environment will now undergo a change to favour drug MNCs because of their size and heavy R&D budgets.

Under the new IPR regime, the challenge for Indian small pharmaceutical firms is to remain innovative as they were under the earlier regime. Under the Indian Patent Act 1970, small firms with their resource limitation had relied primarily on outside sources of R&D like products of foreign firms and effectively invested their limited internal R&D fund for reverse engineering and developing cost effective processes. However, the implementation of the World Trade Organization (WTO) agreement on the Trade Related Intellectual Property Regime (TRIPS) had led to a number of radical changes in the Indian IPR regime. Three Amendments in March 1999, June 2002 and April 2005 on the Patent Act 1970 has been carried out to bring Indian patent regime in harmony with the requirements of TRIPS. These new policies have a number of implications for the survival and growth of small pharmaceutical firms today.

This new IPR regime had extended patent protection to products in drugs, food and chemicals sectors, besides increasing the duration of patent term to 20 years. The burden of proof has been reversed in the case of a process patent and patent owner may not produce the product locally. In the above backdrop, the present study examines the impact of TRIPS on small pharmaceutical firms relative to large pharmaceutical firms in terms of the parameters: This involves comparative analysis of R&D, Patents & Exports of small firms vis-à-vis large firms. The study also explores the implications of new policy regime for small pharmaceutical firms. The study uses both primary as well as secondary data.

2. Review of literature

Sunil (2006) in his working paper undertakes a detailed mapping out of the sectoral system of innovation of India's pharmaceutical industry. He concludes that the TRIPS compliance of the intellectual property right regime has not reduced the innovation capacity of the domestic pharmaceutical industry which has visualized an increase in both research budget and patenting. But at the same time it has not made them work on R&D projects that may lead to the discovery of drugs for neglected diseases of the developing world. He feels that this is an area where public policy support is still required.

Bhaduri (2006) has tried to examine the justification of some of the arguments advanced to implement TRIPS in India. She argues that extending monopoly rights up to 20 years can lead to a situation, where complacency effect of a monopolist, arising out of a secure market, could lead to a decline in R&D expenditure because it will have no incentive to search for more efficient processes of the same product during the patent life. The consumers may, therefore, have to pay higher prices for inefficient processes of the novel drugs under the TRIPS which is in sharp contrast with the stated objectives of the WTO, which propagates to raise global cost efficiency and thereby consumer welfare

In his working paper, Chaudhuri (2007) explores that R&D expenditure has dramatically increased for a segment of the Indian pharmaceutical industry after TRIPS came into effect. It is not only that the amount of R&D expenditure has increased, but there has been a drastic shift in the structure of R&D activities of the Indian companies. Earlier they were primarily engaged with the development of new processes for manufacturing drugs, now they are also involved in R&D for new chemical entities (NCE). Although, the R&D activities have diversified, but the Indian pharmaceutical firms have yet to prove their competence in innovating new products. No NCE has yet been developed.

The study by Zuniga & Combe (2002) focuses on the economic impact of patent protection of pharmaceuticals in the Mexican industry. The researchers have tried to make a brief evaluation of the static and dynamic effects of the introduction of patent protection for pharmaceuticals in Mexico and to compare them to those predicted by economic literature. Although the static effects might have been limited since multinationals already controlled the private market before the reforms, dynamic gains are still far from being felt. Reinforcing patent protection will not automatically change the access and the ways to finance R&D projects. They suggest that other factors besides patent protection must be taken into account before expecting an increased R&D activity in the Mexican pharmaceutical sector

The study by Lanaszka (2003) highlights that WTO rules on IPRs are controversial because of the persistence of the asymmetry in the level of development and research capacities between the developed and developing countries. It is of course true that exploitative business practices are possible only to the extent that monopoly positions are tolerated. Many developing countries, however, lack the necessary financial resources and have not yet developed appropriate competition rules to deal effectively with the challenges presented by TRIPS agreement. The leading industrialized countries must pay attention to the social and economic needs of the developing countries for which a change of attitude is necessary. It should begin with the idea of fairness as one of the principles governing the dialogue between the developed and developing countries. Farness entails sensitivity to the special needs of developing countries and one important dimension of this sensitivity is the recognition of the problems posed by human needs, such as health.

The review of earlier studies highlight that there is an urgent need to carry out research on Indian Pharmaceutical industry in view of the changes taking place in view of globalisation, liberalisation and privatization, especially in view of TRIPS. This study specifically deals with the pharmaceutical industry in the North-Western India colleting data from 100 firms with the following broad objectives to analyse Post TRIPS Scenario in Pharmaceutical industry of India by:

1)   analysing the R&D in Pharmaceutical industry of India in the   post TRIPS Period .

2)   analysing the patenting activity in Pharmaceutical industry of India in the Post TRIPS Period.

3)   analysing the exports in the post TRIPS Period in Pharmaceutical

3. Data Collection and Methodology

The study used both primary and secondary data for analysis. The sources of secondary data are Indiastat.com, EPO, DST and Govt Reports. For primary data around 180 firms were approached and 110 firms returned the questionnaire. Out of these 100 (55.6%) questionnaires were complete in all respects and have been taken up for analysis. The data has been collected from: Mohali, Dehra Bassi, Lalru in Punjab, Baddi, Kala Aamb in Himachal Pradesh, Ambala in Haryana. From the total of 100 pharmaceutical firms surveyed, 8 were large scale firms, 24 medium scale firms and 68 were small scale firms.

To obtain the primary data, questionnaire method was adopted. Judgment sampling method has been adopted for the selection of the pharmaceutical companies. Table I shows the sampling distribution

4. Data Analysis

All the 100 firms surveyed were producing only formulation. Small pharmaceutical companies produce only formulations as they are not in a position to afford the heavy investment required for the production of bulk drugs. Medium companies generally prefer to produce formulation because profit margin is higher. Large pharmaceutical companies can produce both. However the sample firms in this study covering both the medium & the large scale units were producing formulations only. These units were mainly set up in excise free zones like Baddi, Kala Amb etc.

4.1 Changing Scenario of Pharmaceutical Industry

The trends of Pharmaceutical Industry depict that formulations contribute a major share.   In 1980-81 the share of Bulk drugs was only 240 crores (16.7%) whereas the share of formulations was 1200 crores (83.33%). Over the years while the share of bulk drugs has increased to 9034 crores, the share of formulations has increased to 31946 crore, formulations still are contributing a major share (78%). The results of the present survey of 100 firms from North -Western India also depicted that all the 100 firms were producing formulations. (Table 2)

Indian Govt. had declared certain areas like Baddi and Kala Amb as excise free zones. Table 3 depicts the relation between size and total sales. 100% of the large scale firms have reported substantial increase in sales in the last 1 year. (Table 3) These firms have maintained the same status in the last five years also. (Table 4) 67% of the medium scale firms have reported substantial increase whereas 33% have reported marginal increase in sales in the last 1 year. However in the last five years, 83% of the firms have reported substantial increase, whereas 17% have reported marginal increase in sales. 44% of the small scale firms have reported substantial increase in sales whereas 53% have reported marginal increase in sales in the last 1 year.

All the large scale firms responded that their share in domestic market is not declining (Table 5). This percentage was 83% in case of medium firms as 17% reported a decline in share in domestic market. In case of small firms 17% felt that their share in domestic market was declining.

All the 8 large scale firms were focusing on exports. 33% of the medium sized firms were focusing on export, whereas the same was not true for Small scale firms. (Table 6)

The large and the medium scale firms agree with the view that they have shifted to better technology. 11.8% of small firms don't accept this view and 23.5% are neutral about it. Overall even in small scale segment the firms who accept this view are higher than those who disagree with it. (Table 7)

4.2 Firm size and schedule M: Majority of the companies were not against Schedule M.   When asked about whether schedule M was a hasty decision on the part of the govt.   50% of the large scale firms strongly disagree, whereas 50% were neutral about it. From medium size firms 33% strongly disagree,   17% disagree and 33% were neutral. Only 17% agreed that it was a hasty decision on the part of the govt. Even from small size firms, only 18% firms agreed that it was a hasty decision on the part of the govt.   29% strongly disagree with the view, 35% disagree and 18% were neutral.   Not even a single firm out of the three categories strongly agreed that Schedule M was a hasty decision on the part of the govt. (Table 8)

4.3 Firm size & In- House R&D: In the context of new policy regime, technology and productivity are most important determinants of survival and competitiveness of pharmaceutical firms. Even the small firms are required to urgently upgrade their internal sources of technology like expanding in house R&D activities, employing more skilled labour, providing training to their technical manpower, etc.   As far as R&D intensity is concerned, it can be certainly predicted that small pharmaceutical firms considerably lagged behind their large counterparts in undertaking innovative activities. (Table 9)

All large scale firms agreed that In-house R & D has shown a substantial Increase. 83.3% medium scale responded that In-house R & D has shown a marginal Increase and 16.7% accepted that it has substantially increased. 24 small firms are of the view that In- House R&D has not changed, while 36 are of the view that it has marginally increased while 12 Small firms responded that it has increased substantially. 12 percent of small firms responded that it had marginally decreased. The value of Chi Square is 83.077** (Df: 8) is significant at 1 percent level, which depicts that there is a significant association between firm size and In- House R&D.

The large firms rated their R&D performance as very high or high. Four medium firms rated it as very high, eight firms rated it as high, while 12 firms felt that the performance was low. Only eight out of 68 small firms rated performance as high and very high, while thirty firms were of the view that performance was low or very low. Value of Chi Square is: 45.916*,df: 8, which again depicts that there is a strong association between firm size and performance of R&D. (Table 10)

There was an overall agreement amongst all the large scale firms that the proportion of turnover spent on R&D in the last few years has substantially increased (Table 11). Out of 24 medium firms twenty were of the view that proportion of turnover spent on R&D in the last few years has marginally increased and four firms accepted that it had substantially increased. The response was not similar for the small scale firms. In fact twelve of the firms responded that it had decreased and there were 24 firms who accepted that it had increased marginally. Chi- Square is 91.325** (df: 8) depicts a relationship between firm size and the proportion of turnover spent on R&D.

5. Impact of TRIPS on Indian Pharmaceutical Sector

Factor analysis was done to study the Impact of TRIPS on Indian Pharmaceutical Sector (Table 12). The results highlight that six factors namely: i) TRIPS, R& D and New Opportunities, ii) Products under DPCO and Performance of R& D iii) Product Category, Nature of order & Threats, iv) Changes in Tech. and Tech Personnel Employed, v) Changes in Total Sales and exports and vi) Preparedness for TRIPS extracted together account for 76.39 percent of variation.

Factor I viz. TRIPS, R& D and New Opportunities consists of: i.) In-house R&D activities with loading of .804, ii.) Proportion of turnover spend on R&D in the last few years (.663), iii) Cost of production as a result of signing of TRIPS (.690), iv.) Impact of TRIPS on various issues related to Indian pharmaceutical industry (.777) and v) New Opportunities created due to TRIPS (.779).

Two components in this factor are important namely: i.) In-house R&D activities and ii.) Cost of production as a result of signing of TRIPS. Both these components had mean 3.72 & 3.76 which is higher than factor mean of 2.93. It shows that though the cost of production has increased as a result of signing TRIPS, but at the same time In-house R&D activities has also increased.

Second factor viz. Products under DPCO and Performance of R& D had a Eigen value of 2.561 with a variance of 15.067%. Two components of this factor are: i.) Impact on the no. of products of the firm covered under Drugs Price Control Order [DPCO](.891) and ii.) Performance of R&D activities (.794). Based on mean score the factor Impact on the no. of products of the firm covered under Drugs Price Control Order [DPCO] had a mean score of 3.36 which was higher than mean score of both the factors (3.30).

Third factor that emerged from the factor analysis is Product Category, Nature of order & Threats with Eigen value of 2.085. This explained 12.263% of variance. The components of this factor are: i.) Impact on no. of products introduced by the firm (.926), ii.) Threats due to TRIPS in the form of big competition from foreign companies (.857) and iii.) Bulk orders from big companies in the last 10 years (.550). Two components viz. Impact on no. of products introduced by the firm in the last 10 years having a mean score of 4.20 and Threats due to TRIPS in form of big competitions from foreign companies having a mean score of .3.30 are important. Both these components had higher mean than factor mean of 3.12. It shows that inspite of the threats due to TRIPS in form of severe competitions from foreign companies, number of products introduced by the firm in the last 10 years has increased.

Fourth factor namely Changes in Tech. and Tech Personnel Employed had Eigen value of 1.653 and this factor explained 9.722 % of variance. Two components of this factor are: i.)Shift to better technology due to TRIPS (.857) and ii.) Total technical persons employed (.618). Out of these two components, Shift to better technology due to TRIPS is more important, as it has factor loading of .867. and mean score of 3.96 which is higher than the factor mean 3.60. This is quite obvious as majority of the respondents gave a positive reply to this question.

Fifth factor viz. Changes in Total Sales and exports had an Eigen value of 1.324. This factor explained 7.789% of variance. This factor has two variables: i.) Sales in last few years (.861) and ii.) Exports in last few years (582). Out of these two factors Sales in last few years with a mean score of 4.30 has been higher than the mean score of this factor (4.13). It shows that as a result of signing TRIPS, sales in the last few years have been definitely increased.

The last factor that emerged from factor analysis has been Preparedness for TRIPS. This factor had an Eigen value of 1.009 and explained 5.936 % of variation. This factor covered two variables, namely, i.) Status of Patents (.788) and ii.) Face challenges posed by TRIPS (.781).

Status of Patents had a relatively higher mean score (4.14) than the factor mean which is 3.95.It might be due to the reason that the patents of all large & medium firms have registered an increase in post Trips period.

The Overall Mean of all Factors is 3.37. Three important factors on the basis of ranking on mean score include: i) Changes in Total Sales and exports ii) Preparedness for TRIPS, and iii) Changes in Tech. and Tech Personnel Employed. The results of factor analysis highlight that patenting, sales and switch to new technology have higher impact on the Pharmaceutical industry of India.

5.1 Some Leading Pharmaceutical Firms

The study will be incomplete without focusing upon the few Leading Pharmaceutical Firms to see how they are performing in the post TRIPS period. (Table 13)

5.2 Glimpse of the World wide Patent Filing by leading Pharmaceutical Firms

For patent filing the three top firms have shown a marked variation. Ranbaxy has preferred to file patents in EPO. The firm had applied for 73 patents during 2005, 72 being filled in EPO. Dr. Reddy's has preferred to file patents in US has been the major area of interest with the firm having made patent 31 applications during 2005. Cipla has applied for patents in countries other than in the US or EPO member states. The overall rate of Growth of patent filing has been 1.86 per annum in the period 1999 to 2006. Since 2001 there has been a rapid rise in patent filing by leading Pharmaceutical Firms. (Table 14)

The industry's exports were worth 122 crores in 1981-82 and increased to 24942 crores in 2006-07 increasing at an annual growth rate of 9.02 percent. The growth rate was 4.90 in Pre-TRIPs period and 5.03 percent in Post-TRIPS period. (Table 15)

Expenditure on R & D by the Indian pharmaceutical companies is around 1.9% of the industry's turnover. This is very low when compared to the investment on R & D by foreign research-based Pharmaceutical companies. They spend 10-16% of the turnover on R & D. However, now that India has entered into the Patent protection area, many companies are spending relatively more on R & D.

With the reintroduction of product patents, leading Indian pharmaceutical are placing greater focus on R&D and the discovery of new chemical entities. Traditionally, the vast majority of India's pharmaceutical R&D spending was concentrated on reverse engineering and the adaptation of patented foreign drugs to the Indian market. Most of the industry's funding went to research rather than to new drug discovery and development. After 2005, India's leading drug companies recognized that they could not survive as global players without significant R&D capabilities. R& D Expenses have increased at a higher rate in the Post- TRIPs period growing at a rate of 5.07 against 3.88 in period I. Overall rate of growth of R& D has been 6.05 in the period 1981-82- 2006-07.

Patenting scenario of the Pharmaceutical industry also depicts a change in the patenting culture with the patents in drugs and Pharmaceutical Industry Growing at higher a rate (6.06%) as against the 5.57 % growth of total patents granted. Not only patent filing is increasing, patent granted is also growing. Patents Granted to Drugs & Pharmaceuticals as a percentage of Total Patents Granted varied between 7.828 to 22.63%. (Table 16)

6. Conclusion

The broad objectives of the study are to analyse Post TRIPS Scenario in Pharmaceutical industry of India by analysing the patenting activity, R&D and Exports in Pharmaceutical industry of India in the Post TRIPS Period. The results reveal an increase in sales, exports, Patents and R& D in the Post TRIPs period. Patent filing as well as patents granted has shown an increase. Patents in Drugs and pharmaceuticals have grown at a faster rate as compared to total patents granted. Patent filing by leading Pharmaceutical companies has also improved. US and EPO are the preferred destinations for patent filing.

Size wise analysis depicted that all the large scale firms, majority of medium and small scale firms reported a substantial increase in sales in the last year. The results of Chi Square depict a significant association between firm size and In- House R&D, i.e., as the size of the firm increases, its In- House R&D activities also increase. At the same time results of Chi Square again depict that there is a strong association between firm size and performance of R&D,

i. e., as the firm size increases, the performance of R&D also improves. All firms small as well as large agree that R& D activity in the post-TRIPS period has increased.

The pharmaceutical industry in India had been subjected to rigorous price controls since 1970 through the adoption of the Drugs Price Control Order or DPCO. The DPCO was aimed at fulfilling the objective to ensure that availability of drugs at reasonable prices in India and to ensure incentives for domestic producers to produce new formulations. In the

1980s, the focus of the Drug Policy adopted by the Government has been more on providing market-based incentives to the Indian pharmaceutical industry. The analysis depicts that Indian pharmaceutical companies are still focusing more on Formulations and less of bulk drugs.

Factor analysis of Impact of TRIPS on Indian Pharmaceutical Sector revealed that Six factors namely: i) TRIPS, R& D and New Opportunities, ii) Products under DPCO and Performance of R& D iii) Product Category, Nature of order & Threats, iv) Changes in Tech. and Tech Personnel Employed, v) Changes in Total Sales and exports and vi) Preparedness for TRIPS extracted together account for 76.39 percent of variation.

The Overall Mean of all Factors is 3.37. Three important factors on the basis of ranking on mean score include: i) Changes in Total Sales and exports ii) Preparedness for TRIPS, and iii) Changes in Tech. and Tech Personnel Employed. The results of factor analysis underscore the fact that sales, patenting and switch to new technology had higher impact on the Pharmaceutical industry of India. These three factors had a mean score of 4.13, 3.95 and 3.60 which is higher than overall factor mean of 3.37.

The results revealed a tendency to shift to excise free zones. Sales, Exports, R&D and Patenting have increased in the Post-TRIPS period. The large and the medium scale firms accepted of having shifted to better technology. So the Pharmaceutical Industry of India is changing itself to suit the global Scenario.

7. Limitations of the Study

This study is mainly based on the primary data collected through questionnaire from various pharmaceutical companies situated in Northwest region. The researcher has collected the primary data by mailing one/ two questionnaires followed by repeated reminders and also by visiting the concerned pharmaceutical companies. Still the response rate was not very high. In several cases, the exact meaning of the questions (or) may be its impact were not understood by the respondents and they were left unanswered. In large scale companies the executives of the sample pharmaceutical companies responding the questionnaire were not in a position to reply on all the three parameters, i.e., patents, export & R&D.

8. Future Scope

The study should focus more on firm level analysis finding the linkages between Technology, Exports, R& D and Patenting. The study for Primary data covers the North West Region only. It should be extended to cover entire India.

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Table 1. Pharmaceutical Companies

S. No	Place of Pharmaceutical Companies	No. of units
1.	Mohali	6
2.	Dehra Bassi	6
3.	Lalru	6
4.	Baddi	27
5.	Kala Amb	30
6.	Ambala	25
	Total	100

Table 2. Production (Rs Crores) (1965-66 to 2004-2005)

Year	Bulk Drugs	Formulations	Total	%age share of bulk drugs	% share of formulations
1980-81	240	1200	1440	16.7	83.33
1981-82	289	1434	1723	16.8	83.23
1982-83	345	1660	2005	17.2	82.79
1983-84	355	1760	2115	16.8	83.22
1984-85	377	1827	2204	17.1	82.89
1985-86	416	1945	2361	17.6	82.38
1986-87	458	2140	2598	17.6	82.37
1987-88	480	2350	2830	17	83.04
1988-89	550	3150	3700	14.9	85.14
1989-90	640	3420	4060	15.8	84.24
1990-91	730	3840	4570	16	84.03
1991-92	900	4800	5700	15.8	84.21
1992-93	1150	6000	7150	16.1	83.92
1993-94	1320	6900	8220	16.1	83.94
1994-95	1518	7935	9453	16.1	83.94
1995-96	1922	9125	11047	17.4	82.60
1996-97	2186	10494	12680	17.2	82.76
1997-98	2623	12068	14691	17.9	82.15
1998-99	3148	13878	17026	18.5	81.51
1999-2000	3777	15960	19737	19.1	80.86
2000-01	4533	18354	22887	19.81	80.19
2001-02	5439	21104	26543	20.49	79.51
2002-03	6529	24185	30714	21.26	78.74
2003-04	7729	27692	35421	21.82	78.18
2004-05	9034	31946	40980	22.04	77.96

Source: Indiastat.com

Table 3. Sales in the last 1 year

Firm Size	Substantially Decreased	Marginally Decreased	Remained Same	Marginally Increased	Substantially Increased	Total
Large	0	0	0	0	8	8
	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Medium	0	0	0	8	16	24
	0.0%	0.0%	0.0%	33.330%	66.67%	100.0%
Small	0	0	2	36	30	68
	0.0%	0.0%	2.9%	52.9%	44.1%	100.0%
Total	0	0	2	44	54	100
	0.0%	0.0%	2.0%	44.0%	54.0%	100.0%

Table 4. Sales in the last 5 year

Firm size	Sales in the last 5 years					
	Substantially Decreased	Marginally Decreased	Remained Same	Marginally Increased	Substantially Increased	Total
Large	0	0	0	0	8	8
	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Medium	0	0	0	4	20	24
	0.0%	0.0%	0.0%	16.67%	83.83%	100.0%
Small	6	0	6	24	32	68
	8.82%	0.0%	8.820%	35.29%	47.06%	100.0%
Total	6	0	6	28	60	100
	6.0%	0.0%	6.0%	28.0%	60.0%	100.0%

Table 5. Firm Size and share in domestic market

Firm size	Is the share in domestic market declining?		
	Yes	No	Total
Large	0	8	8
	0%	100.0%	100.0%
Medium	4	20	24
	16.7%	83.3%	100.0%
Small	12	56	68
	17.6%	82.4%	100.0%
Total	16	84	100
	16.0%	84.0%	100.0%

Table 6. Firm Size and Focus on Exports

Firm size	Focus on Exports		
	Yes	No	Total
Large	8 (100.0%)	0	8
Medium	8 (33.3%)	16 (66.7%)	24
Small	0	68 (100%)	68
Total	16	84	100

Table 7. Shift to better technology

Firm Size	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Large	-	0	0	4	4	8
		0%	0%	50.0%	50.0%	100.0%
Medium	-	0	0	20	4	24
		0%	0%	83.3%	16.7%	100.0%
Small	-	8	16	24	20	68
		11.8%	23.5%	35.3%	29.4%	100.0%
Total	-	8	16	48	28	100

Table 8. Firm size and schedule M

Firm size	Firm size and schedule M					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Large	4	0	4	0	0	8
	50.0%	.0%	50.0%	.0%	.0%	100.0%
Medium	8	4	8	4	0	24
	33.3%	16.7%	33.3%	16.7%	.0%	100.0%
Small	20	24	12	12	0	68
	29.4%	35.3%	17.6%	17.6%	.0%	100.0%
Total	32	28	24	16	0	100
	32.0%	28.0%	24.0%	16.0%	.0%	100.0%

Table 9. Firm size and In- House R&D

Firm Size	Substantially Decreased	Marginally Decreased	Remained Same	Marginally Increased	Substantially Increased	Total	
Large	0	0	0	0	8 (100%)	8	Pearson Chi-Square: 83.077** df: 8
Medium	0	0	0	20 (83.3%)	4 (16.7%)	24	
Small	0	8 (11.8%)	24 (35.3%)	36 (52.9%)	0	68	
Total	0	8	24	56	12	100	

Table 10. Firm Size and Performance of R&D

Firm size	Performance of R&D					
	Very high	High	Moderate	Low	Very Low	Total
Large	4 (50.0%)	4 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8
Medium	4 (16.7%)	8 (33.3%)	0 (0.0%)	12 (50.0%)	0 (0.0%)	24
Small	4 (5.9%)	4 (5.9%)	30 (44.1%)	20 (29.4%)	10 (14.7%)	68
Total	12	16	30	20	22	100

Chi Square is: 45.916* df: 8

Table 11. Proportion of turnover spent on R&D in the last few years

Firm size	Proportion of turnover spent on R&D in the last few years					
	Substantially Decreased	Marginally Decreased	Remained Same	Marginally Increased	Substantially Increased	Total
Large	0	0	0	0	8	8
Medium	0	0	0	20	4	24
Small	0	12	32	24	0	68
Total	-	12	32	42	12	100

Chi- Square is 91.325** (df: 8)

Table 12. Impact of TRIPS on Indian Pharmaceutical Sector

S No	Factor Name	Factors components	Eigen Values	% of Var.	Item loading	Mean	SD
1	TRIPS, R& D and New Opportunities	i. In-house R&D activities	4.355	25.616	.804	3.72	0.77
		ii. Proportion of turnover spend on R&D in the last few years			.663	2.16	1.49
		iii. Cost of production as a result of signing of TRIPS			.690	3.76	1.07
		v. Impact of TRIPS on various issues related to Indian pharmaceutical industry			.777	2.36	1.20
		v. New Opportunities created due to TRIPS			.779	2.64	1.52
	Mean of TRIPS, R& D and New Opportunities					2.93	
2	Products under DPCO and Performance of R& D	i. Impact on the no. of products of the firm covered under Drugs Price Control Order (DPCO)	2.561	15.067	.891	3.36	0.84
		ii. Performance of R&D activities			.794	3.24	1.29
	Mean of Products under DPCO and Performance of R& D					3.30	
3	Product Category, Nature of order & Threats	i. Impact on no. of products introduced by the firm	2.085	12.263	.926	4.20	1.02
		ii. Bulk orders from big companies			.550	1.88	0.87
		ii. Threats due to TRIPS in form of big competitions from foreign companies			.857	3.30	1.10
	Mean of Product Category & Nature of order					3.12	
4	Changes in Tech. and Tech Personnel Employed	i. Total technical persons Employed	1.653	9.722	.857	3.24	1.29
		ii. Shift to better technology due to TRIPS			.618	3.96	0.87
	Mean of Changes in No of products and Tech.					3.60	
5	Changes in Total Sales and exports	i. Sales in last few years	1.324	7.789	.861	4.30	1.24
		ii. Exports in few year			.582	3.96	0.19
	Mean of Changes in Total Sales and Exports					4.13	
6	Preparedness for TRIPS	i. Status of Patents	1.009	5.936	.788	4.14	0.72
		ii. Face challenges posed by TRIPS			. 781	3.76	1.14
	Mean of Preparedness for TRIPS					3.95	
	Cumulative Variance			76.394			
	Overall Mean of all Factors					3.37	

Table 13. Profitability Ratios of Some Leading Pharmaceutical Firms

	Ranbaxy	**CIPLA**	**DRL**	**Lupin**	**Cadila**	**Wockhardt**	**Orchid**	**Nicholas Piramal**	**Sun**	**Aurobindo**
1995	11.4	11.1	18.0	13.2	6.2	16.9	12.3	12.0	16.5	7.
1996	10.4	10.9	17.7	14.3	7.6	12.5	13.2	12.4	15.9	7.2
1997	13.1	19.6	15.2	17.8	9.5	15.1	18.1	6.0	16.6	8.1
1998	14,3	20.4	11.2	18.1	9.6	13.2	13.5	12.5	16.7	9.1
1999	8.1	22	13.3	18.4	9.7	12.8	13.1	19.6	16.9	11.4
2000	6.7	20.2	14	4.6	11.0	16.9	9.5	8.3	17.4	14.3
2001	8.3	20.5	21.3	13.7	11.3	16.1	13.4	11.7	21.7	11.4
2002	18.7	20.3	32.6	16.7	11.2	17.4	7.0	10.3	23.4	9.9
2003	19	18.4	23.5	13.7	11.5	22.2	8.1	13.7	27.8	13.8
2004	12.3	18.5	15.4	18.9	9.1	21.1	8.2	13.3	18.4	14.5
2005	16.7	19.8	16.3	19.1	11.4	23.2	11.8	14.1	19.9	15.5

Source: Computed from Annual Reports

Table 14. World Wide Patent Filing

World Wide Patent Filing											
	Ranbaxy	CIPLA	DRL	Lupin	Cadila	Wockhardt	Orchid	Nicholas Piramal	Sun	Aurobindo	Total
1999	14	0	3	12	1	2	0	0	1	0	33
2000	31	5	5	9	2	0	1	0	0	0	53
2001	53	15	5	8	3	3	1	1	2	0	91
2002	69	12	25	8	9	14	7	7	0	5	156
2003	127	21	69	12	14	14	31	4	2	6	300
2004	208	38	77	25	19	18	48	8	8	9	458
2005	259	56	49	32	29	25	25	11	4	2	492

Source: EPO

Table 15. Exports and R&D Expenses (Rs crores)

S No	Year	Exports	R& D Expenses
1	1981-82	122	29.3
2	1982-83	112.2	32.2
3	1983-84	155.2	40
4	1984-85	234.2	42.6
5	1985-86	157.9	48
6	1986-87	161.3	50
7	1987-88	326.1	51
8	1988-89	473.7	54
9	1989-90	849.6	56
10	1990-91	1014.1	60
11	1991-92	1550.1	80
12	1992-93	1533	95
13	1993-94	2009.7	125
14	1994-95	2512.3	140
15	1995-96	3408.7	160
16	1996-97	4341.8	185
17	1997-98	5419.3	220
18	1998-99	6256.7	260
19	1999-00	6631.45	320
20	2000-01	8757.47	370
21	2001-02	9751.2	435
22	2002-03	12826.1	672
23	2003-04	15213.24	1054
24	2004-05	17857.8	1124
25	2005-06	22578.98	1235
26	2006-07	24942	1430
	Growth Rate	**9.02**	**6.05**
	Period I Pre TRIPS	**4.90**	**3.88**
	Period II Post TRIPS	**5.03**	**5.07**

Source: Indiastat.com

Table 16. Patenting Scenario in Post TRIPs Period

Year	Patents Granted to Drugs & Pharmaceuticals (1)	Total Patents Granted (2)	1 as % of 2
1994-95	232	1759	13.19
1995-96	132	1533	8.611
1996-97	71	907	7.828
1997-98	291	1844	15.78
1998-99	150	1800	8.333
1999-00	307	1881	16.32
2000-01	276	1318	20.94
2001-02	320	1591	20.11
2002-03	312	1379	22.63
2003-04	419	2469	16.97
2004-05	453	3021	14.99
2005-06	457	4320	10.58
2006-07	798	7539	10.58
2007-08	1469	15261	9.626
Growth Rate	**6.06**	**5.57**	

Source: Indiastat.com

Study on the Model of the Community

Managing in Tourist Attractions

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Abstract

The tourist attraction is a system comprised of local residents, the developer and the local government. Driven by profits, the three parties wish to realize profit maximization. If each of them emphasizes too much its' own benefit, it tends to cause the decline of the overall image and quality of the tourist attraction and in turn damages their respective benefits. This paper starts with typical cases and gives a contrast study on different types of community managing models and focuses on the research of the roles that developers, community residents and local governments play in the building of harmonious communities. The main points are as follows:

(1) The community management is a new main element of attraction management. The other is the attraction operation management.

(2) Different types of attractions adopt different models to manage the communities, which vary from traditional administrative model to modern ones like the separation of communities and attractions model, the integration model, the functional division model owing to the involvement of private sectors in the development of tourist attractions.

(3) The focus of tourist community management is to unify the development of attractions and communities, balance the benefits of the developer, the local residents and the local government and ensure a harmonious community.

(4) The developer practices reasonable profit-sharing mechanism to let local people benefit from tourism, which is the key to the realization of a harmonious community.

(5) Local people's involvement is an approach to effective community management, which requires that locals get professional training so as to guarantee the elevation of locals' awareness of tourism.

(6) It's important for the local government to invest on the construction of infrastructure shared by residents and tourists and offer favorable policies.

Keywords: Tourist attraction, Community, Managing mode

1. The importance of community management in tourist attractions

The tourist attraction, the key element of tourism industry, is a social system combining community residents, the developer and the local government. It aims to attract visitors by developing tourist resources. Tourist attraction management used to be limited to operation management and ignored the practice of community management. With more and much deeper research on the sustainable development of attractions, tourism sociology and anthropology, the community management of attractions will lead the tourist site management. The community is a relatively independent social unit formed by people sharing specific life style and sense of belonging in a specific region. Peter E. Murphy (1985) introduced the concept of community into tourism research for the first time and attempted to study tourism from a community standpoint. Bao Ji-gang (2002) concludes that community tourism is the combination of a community and tourism. However, the previous studies emphasize how tourism influences community development and how community residents get involved in tourism rather than how to implement community management in tourist

attractions.

Indigenous people and visitors are two major components of community tourism. The former needs survival and development and the latter wants recreation and enjoyment, resulting in inevitable contradictions in terms of resource occupation and space sharing. At the same time, the interests of local people, the attraction developer and the local government sometimes conflict with each other. Driven by profits, all the three parties want to maximize their share. This may lead to the decline of the overall image and quality of the attraction, which in turn damages their respective benefits. To solve this problem, we may give up the conventional way in attraction management and try the tourist community management way.

2. Case studies of community managing models in tourist attractions

The previous research on community managing model is mainly about urban communities. The study shows foreign urban communities often adopt the self-governing type, the government-leading type and the mixed type while Chinese urban communities employ the government-leading type, the market-leading type and the society-leading type (Liu Jian-jun, 2003; Xie Shou-hong, 2004; Yang Su, 2004). There are few about rural communities. China exclusively established official organizations to manage the tourist site and community during its early days of attraction management. With the marketability of attraction investors, different managing modes have appeared.

2.1 The official administrative bureau model

Most of the tourist attractions developed in the early stage is state-owed scenic spots, natural reserves, forest park and so on. The government establishes official organizations to govern the related communities. In order to protect and develop Three Gorges, a national level scenic spot, Yichang Three Gorges administrative bureau was founded at the entrance of Xiling gorge in Hubei province. The bureau comprises office, fiscal section, scenic spot section, agriculture and forestry section, comprehensive administration section, responsible for the management of places of interest and communities. It governs three villages, one community committee, covering an area of 142km^2 with a total population of 3402. The villages have raised funds and developed nine tourist sites and 45 tourism enterprises offering a variety of services, employing 980 people and receiving one million visitors per year. The bureau is responsible for the macro-management of attractions, leaving the investment, operation to corresponding villages which function as the basic unit of community. The attractions constitute part of the community and are run by village-owned companies under the guidance of the bureau. When the interests of local people and the government conflict with each other, the official organ tends to choose to ensure the benefits of government by damaging the benefits of residents as it implements management on behalf of its senior organ. For instance, the core area of the Gorge's Door scenic spot has been sold to alien financial groups at low prices, resulting in the construction of Longquan hotel and Kangfu villa, which has damaged the appeal of the attraction as well as the long-term benefits of community residents.

2.2 The integration model of attractions and communities

When a community with certain cultural characteristics is developed into a tourist site, tourism activities are dependant on the community, leading to the integration of the community and the attraction. Dai ethnic garden of Xishuangbanna consists of five well-preserved Dai villages. The development of the site is based on the community. On one hand, the community life featuring Dai religion, ethnic culture, customs and architecture has already become the key element of the tourist attractions, on the other hand, the integration has inevitably brought residents involved in tourism business which form part of their daily life. The company running the Dai ethnic garden is owned by a stated-owned farm and a construction company of Kunming. As the director of the project, the company is in charge of the planning, developing, marketing and operating of the site and helps residents participate in tourist reception. As tourism activities have melted into community activities, the community management is of vital importance to the improvement of tourism quality. The management requires the joint efforts of villagers and the developer. The villagers practice self-governing and the developer helps coordinate the relations between villages, residents, attractions and temples, villages and the company. However, the lack of effective management means in the process makes it hard to guarantee the tourism environment and quality in the attraction if local people conflict with the developer. The long-term interests of both parties are likely to be damaged due to fall of visitor flow.

2.3 The functional division model of attractions and communities

The development of rural tourist sites has changed the economic structure of rural communities and tourism has become the major source of rural economy. The reasonable functional division in providing services between the company and local residents is helpful for the healthy development of tourism. Chexi folk village, a national AAAA scenic spot, locates on the southern bank of Xiling Gorge, Yichang city, featuring the agricultural culture of Three Gorges. It is a trial base of Three Gorges folk culture heritage preservation and Chinese folk culture conservation project and receives 300,000 visitors every year. According to the location of tourist resources and indigenous people, the company has undertaken an overall planning and developed seven sites, such as Bachu garden, Three Gorges folk village, farming museum, water mill museum, former site of people' community, Tianlongyunku and Three Gorges fancy stone center.

These spots locate within the community and form an organic whole with the living center and production center of the community. Chexi adopts functional division mode between the community and attraction. The company is responsible for the development, marketing and operation of the attraction and makes profits by charging the entrance fee. Local people get involved in the tourism businesses by running restaurants, selling souvenirs, providing horseback riding and sedan services. Besides, the company guides the residents to build small brewing and pottery workshops, which not only improves the appeal of the attraction, but also benefit local people. The local government, the villagers and the developer form Chexi scenic spot committee which is in charge of solving contradictions in the community in the process of tourism development.

2.4 The relative separation model of attractions and communities

The attraction is separated from the living sector and production sector and becomes an independent or relatively independent area though it locates within the community. Three Gorges Family scenic spot of Yichang just employs this model. The advantageous resources of Shipai village are separated and developed into scenic spots. Apart from managing the spots, the company also provides a variety of services, like food and beverage, accommodation, shopping and recreation. The ancient town of Shipai where local people live is isolated invisibly from those business centers run by the company. The benefiting channels of locals are forcibly occupied and blocked by the developer except small numbers of people' involvement in the business. In this situation, local government still makes every effort to help the company to solve problems without full consideration of locals' benefits, hence it becomes the vassal of the developer. As a result, the relationship between the company and the residents is so tense that locals often destruct the tourism facilities and operation which severely influenced the healthy development of tourism.

2.5 The contrast study of the four managing models

The above-mentioned four models show many differences in terms of property of attractions, relations between attractions and communities, management mechanism and effects. The differences are as follows (table 1):

Table 1 here

3. The innovation of the managing model in tourist attractions

The tendency in current tourism planning is the combination of construction of tourism destinations and communities, which is more acceptable by locals and also makes the destination more appealing. As an important attraction in the destination, the tourist site is a system combining residents, the developer and the local government. The key issue is to achieve the development of communities and attractions as a whole with due consideration for all concerned and ensure the sustainable development of attractions.

3.1 Principles of model innovation

(1) Community co-management principle. Community co-management refers to the process that all beneficiaries participate in the decision-making, implementation and assessment of public resources management. Attractions are special public resources requiring the involvement of different interest groups, especially that of local residents.

(2) Interest-coordination principle. Owing to different values and interests, the focus of management is the coordination of benefits. The involvement of local residents is the pre-condition of the improvement of the attraction environment and image. More channels should be explored to ensure locals' benefit.

(3) " Image is all" principle. The management should highlight the overall image of the attraction. The image is the basis of the sense of recognition and the sign of difference between attractions as well as the driving force generating continuous attractiveness. the favorable image is not only dependant on its charming scenery, environment and facilities, but also its pleasant humane environment. Thus all interest groups should wok together to create a favorable image and ensure the sustainable development of the attraction.

3.2 The mechanism of model innovation

The nature of attraction-community management is to balance the interests of all parties and the purpose is to build harmonious tourism community.

(1) Profit-driven mechanism. The pre-condition to realize effective management in a community is to promote that the developer gives up part of profits to residents like Chexi. It is not advisable the developer earn all profits. Only by doing so, will the locals be willing to defend the image and environment.

(2) Community involvement mechanism. Residents are the real host of the destination. The attraction is doomed to be a failure without the involvement and support of residents. The content of involvement ranges from tourism planning, environmental protection to tourism education and training. The involving mechanism and the profit-driven mechanism are interactive. The former guarantees the interest of local people while the latter promotes the community involvement.

(3) Government-leading mechanism. It's necessary for the government to play the role of coordinator when the developer conflicts with the locals. A profit-coordination organ (the attraction management committee) can be founded

to solve various contradictions. Within the organ, the government should play the leading role in the infrastructure construction, like transportation, communication, electricity, sewage system and environmental treatment.

3.3 The new model of community-based attraction management

The innovation of management model highlights the coordination of interests of all parties concerned and aims to build harmonious tourism community. The new model promotes community co-management and functional division and stresses that the government, the developer and local people play different roles in the community-based attraction management.

Figure 1 here

(1) The local government, the developer and the local residents comprise the attraction administrative committee coordinating the benefits of indigenous people and the developer.

(2) The basic content of management is to ensure that locals' involvement is beneficial to the overall image, maintain and reinforce the appeal of the attraction.

(3) Community organizations remain their original social and economic self-governing function.

(4) Apart from the management of residents via the committee, the developer's management of its staff and the tourists also makes a difference to the image.

(5) Residents and the developer benefit directly from visitors attracted by favorable image and the company staff and the local government benefit as well in the form of wages and taxes.

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Table 1. The contrast study of the four managing models

| Model	The official administrative bureau model	The integration model	The functional division model	The relative separation model
resource property	Most of them are state-owned scenic spots, natural reserves and forest gardens	Most of them are cultural communities like ancient towns and folk villages	Part of the community is developed into tourist sites	Scarcely populated scenic areas or areas that are artificially isolated by the developer
attraction-community relation	The attraction and the community are completely or partly integrated	The community life forms an indispensable part of tourist activities. Completely integrated	The attraction is part of the community. Partly integrated	The community and the attraction are separated or relatively separated
Community managing mechanism	Combination of the official organ and villagers' self-governing	Combination of the developer company and villagers' self-governing	Combination of the government's coordination, the 's company development and villagers self-governing	The company is only in charge of the operation of the attraction, rather than the community management
effect	bad	good	better	worse
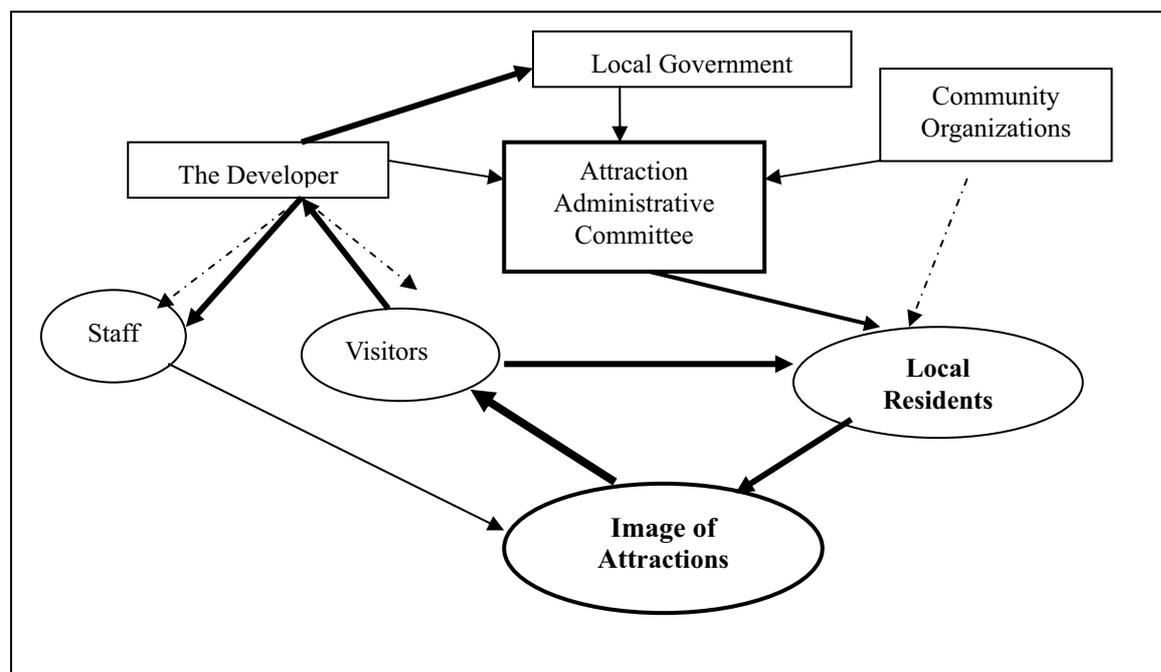
Figure 1. The new model of community-based attraction management

The Operationalisation of Safety Culture for the

Malaysian Construction Organisations

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Abstract

This paper presents the operationalisation of safety culture for the Malaysian construction organisations. Operationalisation is the process of converting a concept into a measure. This measure can be a variable, constant or scale depending upon the situation. Hence, operationalisation will enable the concept to be uniformly understood as there is no measurement has yet been established to enable the industry players to gauge their current state of safety culture. Both qualitative and quantitative methods have unique potential for assessment and a combination of both methods is beneficial towards a comprehensive understanding of safety culture. A mixed methodology is adopted; the preliminary survey and the main survey as an instrument to measure safety culture were developed. The findings revealed that safety culture comprised of the psychological, behavioural and the situational factors' characteristics created by the senior management.

Keywords: Operationalisation, Safety culture and Malaysian construction organisations

1. Introduction

There is no universally accepted framework which has been established to enable the profession to quantify and analyze safety culture in the Malaysian construction industry. This is one of the challenges faced by Malaysia for not having nor developed any indicators for occupational safety and health as highlighted by Anthony (2005). This research intends to contribute to the development of a framework to operationalise the concept of safety culture in the context of the Malaysian construction industry that will allow safety culture to be uniformly understood and used by all interested parties to inculcate safety culture.

Operationalisation is the process necessary to establish an "operational definition" that will allow a concept or construct

to be uniformly understood and used by all interested parties (Tustin, 1992). An operational definition assigns meaning to a construct or a variable by specifying the activities or operation necessary to measure it (Kerlinger, 1973). Further, operationally defining a concept to render it measurable is done by looking at the behaviour dimensions, facets, or properties denoted by the concept according to Sekaran (2003). These are then translated into observable and measurable elements so as to develop the measurement of the concept.

The operationalisation of safety culture involves the analysis on various concepts and measures as presented graphically in Figure 1.0.

2. Literature Review

2.1 The Operationalisation

Operationalisation is valuable if used properly, aiming at establishing ideal structures and offering definitions that approximate the concept included in the research according to Sarantakos (1998, p130). He further states that operationalisation is an indispensable tool of quantitative but its methodological should not be overestimated. The three major elements of operationalisation according to Sarantakos (1998, p130) are;

1) Selection of indicators, which reflect the presence or absence of the element the researcher set out to measure.

2) Quantification of the indicators, identification of the continuum of values the indicators can assume, and *assignment of scores* that represent the degree of presence

3) Quantification of variables, identification of the continuum of values the indicators can assume, and *assignment of scores* that represent the degree of presence.

Hence, the approach of this research involved three stages as suggested by Sarantakos (1998); Stage one is the *Selection of indicators* in which the factors' characteristics are identified. The researcher used the term factors' characteristics to capture the various terms used in safety culture studies, i.e. indicators, dimensions, features, factors, approaches, characteristics etc. which was presented in descriptive form, tabulation (framework) or illustrated as models. This is done by analyzing various model or approaches of safety culture studies. Stage two is the *Quantification of indicators*, involved the assigning of meaning to the construct by specifying the dimensions and items for each. The third stage is the *Quantification of variables*, involved the assigning of measurement and scales to the items.

2.1.1 Stage 1: Selection of indicators

The selection of indicators involved the identification of the factors' characteristics for safety culture which was based on the review of safety culture models from previous research.

The International Automatic Energy Agency (IAEA) developed a model in 1991 places a greater emphasis on managerial system and structure, indicating that the organisation requires a self-regulating safety management system, to ensure achievement. International Nuclear Safety Advisory Group (INSAG) in this model emphasis on the role of the management system in developing an effective safety culture, as oppose to placing emphasis on the role of individual's and peer group attitude (HSE, 1999).

Geller (1994), following Bandura, proposes the concept of Total Safety Culture, identifying personal characteristics (knowledge, experiences, skills, abilities, intelligence, motivation, personality); behavioural (compliance, coaching, recognition, communication); and environmental (equipment, tools, machines, housekeeping, environment, engineering) factors as key aspects of safety culture.

Cox et. al (1997) further developed a System Model of Safety Culture who also suggests that organisational variables influence the work environment and group processes, and individual behaviour on safety activity. and their actions and commitment as a key group in influencing attitudes, along with structural safety communications systems and employee participation programmes. The general model was broadly supported by empirical research as revealed by HSE (1999).

AEA Technology, between 1993 and 1994, developed another model which focuses on organisational factors as reported by Dalling (1997). Dalling states that the research included;

- A wide ranging technical review of contemporary work of safety culture, organisational and managerial factors, team aspects, individual attitudes and responses and factors influencing cultural change;

- Case histories of safety improvement schemes;

- Studies aimed to determine the factors which correlated with good safety performance, and;

- Initiatives which claimed to improve not only safety but also safety culture itself

Grote and Kunzler (2000) presented a socio-technical model of safety culture that links the safety management system and safety culture to the general organisational design. However the model is schematic and lack of mechanism to improve and assess safety culture.

Cooper (2000) developed a Reciprocal Safety Culture Model. According to Cooper (2002b), there is no universally accepted model that has yet been established to analyse safety culture. However a psychological conceptual model is available and necessary to reflect upon a wide range of safety-related evidence in the development of the measurement tools. This body of evidence reveals the presence of a dynamic reciprocal relationship between psychological, behavioural and situational factors.

The review of these models also consensus viewed safety culture at the organisational level, in part or as a wholesome. IAEA (1991) and Grote and Kunzler (2000), focus on the management system as the main factors. However AEA Technology (1993-1994) focuses on the organisational and external factors that influence the work environment and group processes whereas Cox *et.al*, (1997) on the individual behaviour. On the other hand, a combination of three elements; the subjective psychological factors, observable on-going safety-related behaviours and the objective situational features were established by Cooper (2000).

Based on the review, the development of the conceptual operational framework that was adapted in this research is the Reciprocal Safety Culture Model by Cooper (2000) as illustrated in Figure 2.0.This is due to the fact those factors' characteristics which constitutes; the Psychological, Behavioural and the Situational factors allows triangulation of perspectives in the context of safety culture within an organisation. These three elements also mirrored those accidents causation relationship found by a number of researchers (Heinrich *et.al*, 1980; Weaver, 1971; Reason, 1990; Suraji, 2001). Further, the model itself promote self-regulatory processes consistent to the definition of safety culture in the context of this research as 'The product of shared values, beliefs, attitudes, and patterns of behaviour based on a top-down approach practices that are concerned with minimizing the exposure to conditions considered dangerous or injurious to the entire group members on a self-regulatory basis' (Faridah and Torrance, 2004).

The values, beliefs, attitudes were the psychological factors, the behavioural factors were the pattern of behaviours created and since organisations are contained entities, it should provides an environment that concerned the exposure to conditions considered dangerous which constitutes the situational factors.

2.1.2 Stage 2: Quantification of indicators

This stage involved the assigning of meaning to the construct by specifying the dimensions and items for each factors' characteristics.

2.1.2.1 The Psychological Dimensions and items

Schein (1985) states that *the value* gradually starts a process of cognitive transformation into a *belief* when the leader proposes a solution based on his *belief* or on a principle based on facts and the solution works. On the other hand, an attitude lies between the beliefs and the intended behaviour as suggested by Lingard (2002) and Stewart (2002, p.11). In organisations with enduring excellence in safety, the safety values are deeply held and they are brought to the surface in the practices according to Stewart (2002, p.12). Hence, the psychological dimensions measure the values and beliefs as illustrated in Figure 3.0 whereas the observable practices are measured under the behavioural dimensions.

2.1.2.2 The Behavioural Dimensions and items

The identification of the behavioural dimensions was the outcome from the Preliminary Survey. The methodological processes of the Survey and the results were discussed in the Research Methodology section. Five testable factors were identified in the Preliminary Survey, namely Leadership, Organisational Commitment, Management Commitment, Safety Training and Resource Allocation (Faridah and Torrance, 2005). The factors identified from the Preliminary Survey are illustrated in Figure 4.0.

2.1.2.3 The Situational Dimensions and Items

Cooper (1998) considers safety management systems as environmental factors in his model of organisational safety culture. This is due to the fact that organisations are contained entities, where the efficacy of safety management systems is the key internal environmental factor. However since safety culture is the dynamic reciprocal relationship between group member's perceptions and attitudes towards safety (cognition); and there is the presence of external influences including legislation, economics, history and climate (environment or situation). The situational dimensions are categorised as the internal and the external factors as illustrated in Figure 5.0.

2.1.2.4 Additional Items for All Dimensions

The following items do not form a dimension by themselves but were embedded within all the previous dimensions discussed.

Continuous improvement

The most successful improvement efforts focus on the organisation according to Winchell (1991). Organisationally, according to the author, continuous improvement is a gradual change in how the activities are conducted within the organisation as it is one of the essences of TQM. Continuous improvement means that there is continuous safety

improvement through the cycle of problem identification and analysis, development and implementation of corrective recommendations, review of results and development of effective controls (Weinstein, 1997). This item was essential to be incorporated as highlighted by Dr. Kazutaka Kogi who is a well-known occupational health specialist and currently a research Adviser of Institute for Science of Labour in Kawasaki of Japan while validating the behavioural factors during his visit at National Institute of Occupational Safety & Health (NIOSH) Malaysia in March 2004.

Sub-contractors

Subcontractors are often an integral part of construction projects and have a direct bearing on the company safety (Molenaar, 2002). This is one of the scenarios found in the Malaysian construction organisations (Faridah and Torrance, 2009). The importance of subcontractor's past safety performance as a criterion for soliciting bids for new work will determine the commitment of the Main Contractor towards safety.

2.1.3 Stage 3: Quantification of variables

This involved the assigning of measurement and scales to the items. Generally a seven likert- scale were used to measure all the dimensions of the three main constructs as likert scale is widely used in measuring opinions, beliefs and attitudes. Each construct had different number of dimensions which were measured on a 7-point Likert scale. High value of the scale will be consistent with high emphasis on safety culture items being practiced within the organisation and likewise low scale value is consistent with low emphasis on safety culture items.

3. Research Methodology

This research uses construction organisations as the unit of analysis. The scope of the study was derived from the whole total population of 866 (overall total of 1,171) numbers of a Grade 7 contractors listed under the Construction Industry Development Board (CIDB) Directory who undertake Building Works within Klang Valley.

However the examination of safety culture is from the individual perspectives of the senior executives as the data source. The approach is consistent with the proposition that the top management is in a position to influence cultural identity, a top-bottom approach as established by IAEA (1991), Cox *et.al* (1997) and Mohamed (2003).

3.1 The Preliminary Survey

The process of sending questionnaires to a total of 866, took almost a month to administer. This included preparation of cover letters, proof-reading of questionnaires, preparing self addressed envelops, cover letter, typing the addresses of the respondents, coding and franking for postage.

The Preliminary Survey was conducted to identify the management practices that embed safety culture into the organisational culture. This is to capture the behavioural dimensions of the safety culture. The first part of the questionnaire was designed to capture the background of the respondents and the company. These include respondents' personal and safety-related characteristics, their education level, job position and their awareness on the trend to inculcate safety culture. The nature of the projects in which the company had been involved, the techniques and tools utilized within the organisation in relation to project safety. Even though the respondents belong to the same group of Grade 7 contractors, it is important to know the pattern of their involvement and the background of the organisation as culture can arises from the learning experiences as their organisations evolve (Schneider, 1990).

The characteristics of good safety culture practices (Faridah, 2006) form the basis for development of questionnaire. The 24 organisational and safety implementation statements in the second part of the questionnaire were designed to enable responses to identify and add on to a given list, the management practices that facilitate the embedding of safety culture into the organisational culture.

Nonparametric procedures were used to analyze the data obtained from the survey. The nonparametric procedure is a statistical procedure that has certain desirable properties that hold under relatively mild assumptions from which the data was obtained. As an example the use of a survey answers as strongly agree, agree, disagree and strongly disagree are subject to the interpretation of the respondent.

The Statistical Packaging for Social Science (SPSS) version 11.5 was used to perform the data analysis. The initial process was to explore the characteristics of the data. In order to be more objective in the qualitative analysis, a variety of statistical techniques were employed. These techniques were descriptive and inferential. This research used principal components analysis (PCA) to extract the factors. Factor analysis was carried out, which aimed to reduce these large items to several items called *factors*. Factor analysis is a statistical method used to represent a set of large variables (items or questions) to several factors. Each factor contains the items that are highly correlated among each other.

3.2 The Main Survey

The literature review indicates that the present research should include scales dealing with aspects of psychological, behavioral and situational factors' characteristics. The questions were designed to capture these three aspects of safety culture adapted, from Cooper (2000), Stringer (2002), Stewart (2002), and Schein (2004) as the main source of

references. The operationalisation on the concept of safety culture led to the development of the main questionnaire survey.

4. Results and Discussion

The respond rate of the Preliminary Survey was 16.67%. The *principal components* for extraction method with *varimax* rotation were used where six factors were extracted. However, the sixth factor was excluded since it contains only 1 item. Thus, only five items were considered and defined as follows:

Factor 1 (5 items): Leadership

Factor 2 (3 items): Safety Training

Factor 3 (2 items): Organisational Commitment

Factor 4 (2 items): Management Commitment

Factor 5 (2 items): Resource allocation

Sample of items for each factors are presented in Table 1.0 in Appendix l.

As illustrated in this table, it can be clearly seen that factor 1 comprises of five items and their respective factor loadings range from 0.625 to 0.751. The Cronbach's Alpha for these items was 0.8456. Factor 2 was made up of only two items with factor loadings ranging from 0.642 to 0.736 while Factor 3, Factor 4 and Factor 5 comprise of two items with factor loadings ranging from 0.761 to 0.868, 0.759 to 0.826 and 0.626 to 0.688 respectively. The coefficient of reliability for Factor 3 was 0.7901 while for Factor 4 was 0.5966. However, for Factor 5 its coefficient of reliability was relatively low (0.1576). The five factors extracted can explain 59.61 % of the total (standardized) sample variance. The five factors identified are consistent with the literature review on the "good" safety culture features (Faridah and Torrance, 2005).

The psychological covers the aspects of values and beliefs since safety culture itself are a cognitive construct. Four items were used to measure the dimension namely; personal emphasis given for safety as compared to quality, cost efficiency and production volume; perception towards senior managers on the same items, the belief that injuries can be prevented and the belief that excellent in safety will affect excellence in other areas.

The behavioural constructs comprised of factors identified via the Preliminary Survey namely; leadership; organisational commitment; management commitment; training and resource allocation. Seven items were used to measure on leadership, management commitment, safety training and resource allocation. However for organisational commitment which was further sub-divided into *Strategy* and *Structure* were measured with seven and five items respectively.

On the other hand the situational constructs consist of the internal i.e the safety management system of the organisation and the external factors influencing the organisations i.e the industry norms, legislation and regulation, economic climate, individual background, organisational history and the sub-contractors' background. Sample items for each dimension are presented in Appendix ll.

As mention earlier, the measurement and scale constitutes the third stage of the operationalisation. Generally a seven likert- scale were used to measure all the dimensions of the three main constructs as likert scale is widely used in measuring opinions, beliefs and attitudes. Each construct had different number of dimensions which were measured on a 7-point Likert scale.

Cooper (2000) highlighted the three context; safety climate; behavioural and the safety management dimensions separately, specifying the items and applying three different research methods. However in the context of this research, the examination of safety culture is from the individual perspectives of the senior executives as the data source. The approach is consistent with the proposition that the top management is in a position to influence cultural identity, a top-bottom approach as established by IAEA (1991), Cox *et.al* (1997) and Mohamed (2003).

The operationalisation of the concept of safety culture involved the choice of sequencing the research methods. Preliminary Survey was carried out to identify the factors or practices that embed safety culture into the organisational culture. The factors identified which are behavioural in nature were expanded further to include the aspects of psychological and situational factors formulated into the Main Survey which forms the measurement scale for safety culture. While safety management system reflects the competence of the organisation to manage safety, safety culture reflects the actual commitment throughout the organisation (Eurocontrol, 2005).

5. Conclusion

This paper set out the elements involved for the operationalisation of safety culture. The approach involved three stages as suggested by Sarantakos (1998); Stage one is the *Selection of indicators* in which the factors' characteristics are identified. This is done by analyzing various model or approaches of safety culture studies. Stage two is the

Quantification of indicators, involved the assigning of meaning to the construct by specifying the dimensions and items for each. The third stage is the *Quantification of variables*, involved the assigning of measurement and scales to the items.

The operationalisation of safety culture for the Malaysian construction organisations for this research adopted Coopers' Safety Culture Model which is based on the psychological, behavioural and situational factors' characteristics. The psychological factors incorporate the values, beliefs and attitudes as the dimensions. The behavioural factors were measured by the leadership, the organisational commitment, the management commitment, training and the resource allocation. The dimensions for situational factors were divided into two distinct categories; the internal and the external factors. The internal measures the safety management system whereas the external was measured by the factors such as government regulations; economic conditions, competitive industry forces, and changing technology create pressure on organisations and their managers.

The process of operationalisation allows the concept of safety culture to be uniformly understood and used by interested parties. The related study on specific factors' characteristics of safety culture has not been covered by any researchers in Malaysia and, therefore, will contribute to its development in future.

Acknowledgement

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Appendix 1. Questionnaire items in Preliminary Survey

Table 1. Summary of the result of factor analysis

Factors	Items		Factor Loadings	Cronbach's Alpha
1	1)	All employees feel confident enough in the organisational management to be able to voice their safety concerns.	0.751	0.8456
	2)	All levels of management actively participate in all safety training programmes and safety committees.	0.730	
	3)	Safety remains a priority even when other organisational demands arise.	0.642	
	4)	Organisational management clearly state long-term objectives and plans for safety.	0.635	
	5)	Safety is a component of organisational strategic planning.	0.625	
2	1)	All new employees should receive a thorough orientation of the organisational safety.	0.736	0.6692
	2)	Safely is shared value within the organisation.	0.645	
	3)	The organisation should provide a mentoring program for all new employees to develop safe working habits.	0.642	
3	1)	Safety is part of the organisation statement.	0.868	0.7901
	2)	Occupational safety & health is part of the organisational culture.	0.761	
4	1)	The organisation tries to fix the problem related to safety rather than fix the blame.	0.826	0.5966
	2)	If an accident occurs, the organisational leaders try to find the root cause.	0.759	
5	1)	The safety department is considered an organisational expense centre.	0.688	0.1576
	2)	2) All members of the organisation can contribute safety items for consideration to the budgetary committee.	0.626	

Appendix 2. Questionnaire items in the Main Survey

The respondents were asked to endorse the statements using a seven-point Likert-type scale (from 1=very high emphasis to 7=very low emphasis).

PSYCHOLOGICAL: Culture is a cognitive construct. This section measures the value of safety in your company

I Your Values & Beliefs

a. **Indicate the emphasis you personally** give to the following items

Quality towards customer focus

Cost efficiency

Production volume

Safety

b. Indicate where you think the **senior managers** in your organisation emphasis the same items

Quality towards customer focus

Cost efficiency

Production volume

Safety

c. Your belief that **injuries can be prevented**

d. Indicate **your belief** that a drive (strong, long-term effort) for **excellence in safety** would affect the ability to **achieve excellence in other areas**: productivity etc

BEHAVIOURAL: This section measures the behaviour – based safety practices in your company.

I Leadership:

a. The Senior Manager are role model

b. Senior Manager are visible at worksites

c. Senior Manager is supportive and helpful to subordinates in their day-to-day activities.

d. Senior Manager involves people in setting their goals

e. The Senior Manager encourage the subordinates to participate in making decisions

f. The Senior Manager provide leadership for OSH activities in the organisation

g. Senior Manager owes the overall responsibility for the **sub-contractors'** safety & health

h. Others (Please specify)

ii Organisational Commitment

Strategy

a. The safety policy statement describes the organisation's core beliefs, commitments, and responsibilities regarding safety, and connects these successes to the success of the organisation's overall mission.

b. The organisation clearly stated safety in long-term objectives and plans for the organisation

c. The organisational objectives state that safety is paramount within the organisation

d. This organisation provide clear and specific safety budgets

e. The safety policy statement defines and reinforces the safety objective expressed in the mission statement

f. Safety policies and objectives are consistently reviewed and remain timely

g. **Sub-contractors** past safety performance is an important criteria for selection in the organisation.

h. Others (please specify)

Structure

a.   The organisation established clear, specific performance goals for subordinate's job

b.   Structures of the organisation are established to define and communicate to members of the organisation the responsibility, accountability and authority of persons who identify, evaluate or control hazards and risk

c.   Structures and process are established to ensure that OSH is a line-management responsibility which is known and accepted at all levels

d.   Structures and process are reviewed timely for OSH excellent

e.   Structures and process are established to provide effective supervision of the **sub-contractors' work**

f.   Others (Please specify)

iii   Management Commitment :

a.   The top management acts as chairman or member of safety committees

b.   The top management administers safety policies

c.   The top management participates in decision making on all activities that give an impact on safety matters

d.   The top management regularly audit safety systems to provide information feedback with a view to developing ideas for continuous improvement The top management have mechanisms in place to gather safety related information, measure safety performance, and bring people together to learn

e.   The top management thoroughly examine safety reports, investigating all accidents, near misses and takes necessary action

f.   The top management monitor the safety management system of all the **sub-contractors**

g.   Others (please specify)

iv   Safety Training:

a.   The necessary OSH competence requirements; arrangement established and maintained to ensure that all persons are competent to carry out safety and health aspects of their duties and responsibilities

b.   Safety training are provided to all subordinates free of charge

c.   The safety training programmes are provided effectively, timely initial and refresher training at appropriate intervals

d.   Everyone is trained regularly and thoroughly in specific job techniques and in more general practices.

e.   There is a mentoring program for all new employees to develop safe working habits

f.   The training programmes are reviewed regularly to ensure their relevance and effectiveness.

g.   Safety training background is a criteria for **sub-contractors'** to receive invitation for new works in this organisation.

h.   Others (Please specify)

v   Resource Allocation :

a.   There is a reward system (compensation, recognition, promotion) that is directly related to performance rather than to personal relationships and so on.

b.   Good performance is recognised more often then critizing for poor performance.

c.   Recognition, praise and similar methods are rewarded for good performance.

d.   Appreciation given when people put extra time and effort on safety

e.   Sufficient resources are reviewed timely for safety purposes

f.   The safety department is considered an organisational expense centre.

g.   An incentive is offered to sub-contractors to become excellent safety performers

h.   Others (please specify)
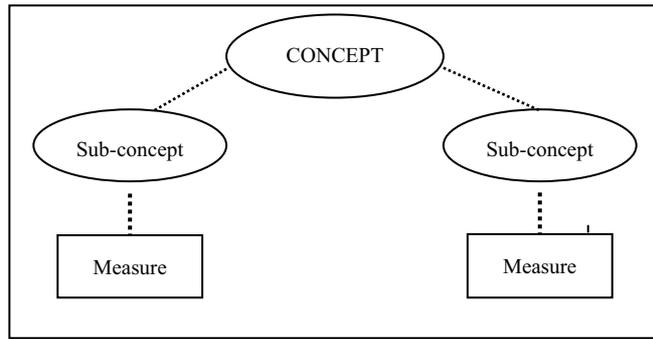
Figure 1. Graphical Method of Presenting

Operationalisation

Source**:** Adapted from Beaumont (2000)
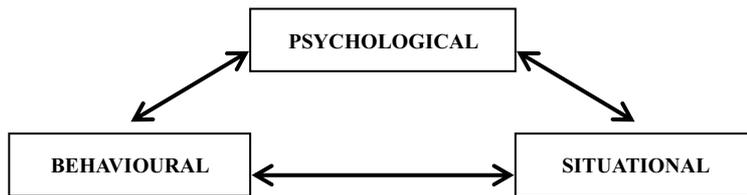
Figure 2. Factors' Characteristics of Safety Culture
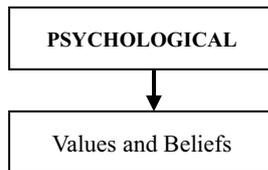
Figure 3. The Psychological Dimensions

Figure 4. The Behavioural Dimensions
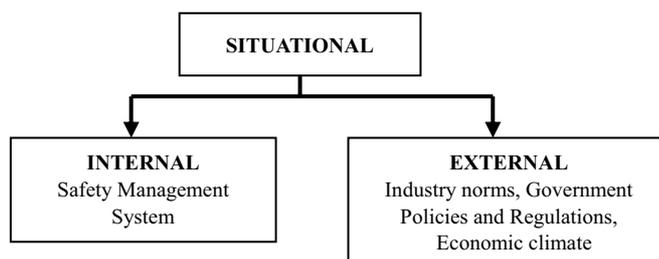
Figure 5. The Situational Dimensions

The Thinking of Subprime Lending Crisis

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Abstract

Long time after the big and terrible world wild financial crisis between the year 1929~1931, today's international economic environment has been facing another influential problem------the subprime lending crisis. The subtle causes have brought about profound influences. The whole world tries to find the solutions and expect the changes in the financial system.

Keywords: Subprime lending crisis, Mortgage, Default rate, Foreclosure, Bond

The subprime lending crisis originally happened in the spring of 2006 in America, in August, 2007, it spread to all of the important financial markets like North America, Europe and Japan. With the increasing of the interest rate and decreasing of the house price, the delaying rates of the housing mortgage from the subprime clients have been rising a lot, and the risk of the subprime mortgage has been uncovered rapidly. Generally speaking, the damages caused by the problems of subprime mortgage are relatively limited to some extent. But the consequences really serious are the Financial Innovations of the derivative damages based on the subprime mortgage which can bring a big scale of catastrophe so many times larger; furthermore, it can make the victims spread to the financial organizations almost in every democratic market.

1. The cause of the subprime lending crisis and its prevailing

1.1 Long time of the low interest rate

How the situations of this financial crisis happen? Exactly, from year 2002, the Federal Reserve in America always maintains a policy of the low interest rate in such long period. Stand in the position of the central bank, low interest rate means space big enough for macro-adjusting the economy and supplying a comfortable environment for economy facing the impact from outside. Nevertheless, the circumstances of long time low interest can bring a serious risk. Because of the low interest rate, the benefits the banks can get from each individual is low, therefore, in order to expand the business, a lot of the commercial banks decreased their standard of the first payment if anybody wants to get the mortgage loan, and even the situation without fist payment occurs. All of the facts have stimulated the bubble of the mortgage loan and especially for the subprime lending in the industry of real-estate. At the mean time, the situation of low interest rate also stimulated the demand of the real-estate. So, in America, the house price is always increasing in such an active market of real-estate. The low interest rate and the so called prosperity in real-estate have covered the risk of subprime mortgage loan. There are statistics to show that the fastest speed of the real-estate development happened between the year 2003 ~2006. According to the calculation of IMF, the part of the subprime lending business occupies 14.1 percent in the whole mortgage loan of the real-estate; the exact volume is 1.1 to1.2 trillion US Dollars. Within 5 yeas actually, the house price had increased 100%, the subprime client could easily get money for supporting the monthly payment, and the default rate is far less than the original estimation. Under the prediction of the low default rate, there are so many organizations of the hedge fund utilized their interior mathematic formations to do the evaluation at the derivative products of the subprime mortgage, and soon found the astonished benefits. Thus, large groups of the

investors came in. But the terrible thing is that the extremely low default rate under the real-estate prosperous bubble is untrue, the high benefits calculated by this sort of formation also can't be realized at all, the pioneers' income gives consequences to followers' great losses.

1.2 Increasing of the interest rate and decreasing of the house price

Similar to the situation that the prosperity of the subprime mortgage market is relied on the environment of loosely monetary policies, the realization of the risk is also beginning at the end of the loosely monetary policies. As we all know, when the tight monetary policies occur, the interest rate must be higher. Because most of the interest rate in the mortgage loan is floated, which means the interest rate signed by the contract will be changed all the time according to the up and down of the actual interest rate. So, when the actual interest rate is much higher en cause de tight monetary policies, it will increase the burden for the borrowers in the market of real-estate paying their money back. Otherwise, the new monetary policies would give influences to lower the demand in the marketplace of real-estate and decreased the house price, this can absolutely diminished the capital volume for the lenders, especially for the commercial banks, they were facing losing their abilities to gain capitals and do further investment. Also, the decreasing of the house price could lower the opportunity cost for the borrowers do not obey their contracts. Thus this would increase the credit risk absolutely. In order to forbid the investment bubble becoming even bigger, from the year 2005, the Federal Reserve enter into the duration of increasing the interest rate. Till the end of 2006, the central bank of America increases the interest rate for 17 times let the interest rate from 1 percent to about 5 percent. For the time later, the influence of the interest rate augmentation has gradually appeared. Under the influences of the two cases: the decreasing of the house price and the increasing of the interest rate, the risk in the market of subprime mortgage occurred to a big scale. In the whole year of 2007, the default rate in America reached 13.3 percent, and the rate of foreclosure reached 4 percent, but normally speaking, the two ratio could specifically be 2.57% and 0.5% in adequate.

1.3 Aggressive loaning conduct

The aggressive loaning conduct is also the indispensable factor to this financial crisis. In western countries, it is prevailing for people making loans. From houses to cars, credit cards to telephone bills, loans are in everywhere. The citizens seldom do the full pay when they buy houses, but always do it by the method of mortgage loan. Also, as we know, unemployment and reemployment are very common in these societies. Everybody needs house or apartment, but how can the people who get an instable income or even do not have any income do the purchase? Make the mortgage loan, absolutely! Because the credit level could not reach the normal standard, these people are defined subprime clients. And what is the aggressive loaning conduct? For a long time, banks lend money to the subprime clients in the guarantee that if the borrowers can't pay their money back, the banks have the authority to withdraw their houses. But according to the situation that the house price is diminishing and the interest rate is increasing. The banks found if the subprime clients could not do the repayment and they let the houses be sold in the market, the money the banks can get is even less than the original loan. With this sort of affair spreading to a big scale, subprime lending crisis occurs.

1.4 Over-structured financial system

The last part which gives the contribution to spread the financial crisis is the over-structured system of today's financial marketplace. The over-structured market has the characteristic that there are so many financial derivative products which may possibly bring the terrible leverage effects to the economic environment. The over-developed fictitious economy is not just a temporarily inadvertent action taken by the financial systems of America, exactly; the market which lacks of the basic support of the entity economy and owns a part of too much leverage effects and derivative products is extremely dangerous. According to the formula of the capitalized income:

Value of capital = income – interest rate.

This is exactly a formula which can transfer any current of income into the large quantities of the fictitious financial capital. Because of the global circulating system of US Dollar, all of the current incomes have the chance to be capitalized when get stable. Thus, in the 13 trillion dollars of the American national income, most of them could be capitalized. The most normal method for Wall Street capitalizing people's income is to make the mortgage loan in the industry of real-estate. After seeking the normal citizens, they turning their eyes into the current income owned by those people who have the relative lower credit level. Capitalizing the unqualified current income and the mortgage loan the commercial banks lend to them is called subprime mortgage. Furthermore, Wall Street rapidly creates the innovation of the mortgage bond simply based on the unqualified mortgage loan from the subprime clients. Every time re-capitalizing the current income there are new fictitious capital be created. This sort of the new fictitious capital can mean that the capital distance between the present and original lenders and buyers becomes even farther, the power of fictitious even stronger. For a long time, this could absolutely bring about the horrible bubbles in American economy. The global circulating system of US Dollar supply enough currency that can be used for the financial innovation inside America, this can make Wall Street capitalizing all sorts of current income as largely as possible. For a long period, the over fictitious economy has appeared. The most important thing during this process is that the current income owned by the

people who have the low wages has been capitalized for so many times, therefore, it becomes the chain of leverage. In one side, this makes the distance between the original risk and the last holder of the risk even longer. In another side, this can also make the functions of the different financial leverage be interweaved, bring about the risks even bigger in economy. Thus, the fragile of financial market represents the fragile of the whole economy. And this is exactly the reason why this subprime lending crisis could spread to such an extremely big scale. Perhaps, even if there is no financial crisis existing in the real-estate, there must be occurred in another industry in the prerequisite that today's financial systems have not been changed.

2. The characteristics of subprime lending crisis

With the subprime lending crisis spreading to world wild, subprime mortgage, the concept which was not so popular before, has been concentrated by all of the people. The so called subprime mortgage refers to the mortgage loan get by the group of citizens or families who gain relatively low wages, low level of education, low knowledge in finance. There are some of the basic particularities for this.

2.1 Low credit record of subprime clients

The borrower of subprime mortgage is the person who has the bad credit record, owns the low level of the credit marks. The evaluation firms of credit in America separate the credit level for different people in five standards: 750~850 points is outstanding, 660~749 points is good, 620~659 points is average, 350~619 points is bad, below 350 points is yet identified. Most of the subprime clients have the standard below 620 points, normally speaking; they have not the chance to reach the condition to get the mortgage loan if they choose to give a large sum of money for the first payment.

2.2 High rates of loan / house price, monthly mortgage payment / income

Among the subprime clients, proportion of loan / house price, monthly mortgage payment / income, both of the two statistics are very high. In the normal standard of the mortgage loan, the proportion of the loan in the total house price is about 80 percent, monthly mortgage payment in the individuals' income is about 30 percent. However, for the subprime clients, the average proportion of loan / house price is 84 percent, some of them over 90 percent, and even reached 100 percent. That means the first payment for the subprime clients is usually less than 20 percent, and even the situation of zero first payment occurs. Without the actual circulating of the individuals' currency, the banks lost the system of the risk afford that should be shared with the borrowers. And we can easily see the moral risks inside of it. Also, the high proportion of monthly mortgage payment / income represents the free money the borrowers can dominate is very limited, thus, the ability to fight against risks is so weak.

2.3 High default rate and rate of foreclosure

The default rate and the rate of foreclosure in subprime mortgage are extremely high. Because of the default risks in subprime mortgage is 7 times bigger than the normal mortgage loan. Thus, the interest rate for subprime mortgage is 350 basic points higher than the normal mortgage loan, and 80 percent of them are floating interest rate. During the period of lending, if the interest rate is descending, the afford for the borrowers paying their money back is lightened. But if the interest rate during the process is ascending, the afford for the borrowers could be much heavier, therefore, the risk of default and foreclosure could be increased. Basically, the appearance of the subprime lending crisis inevitably has the relations to American macro-monetary policies. Though the whole duration is not short, the market of American subprime mortgage developed in a very slow pace in the 20th century, and the scale is not big. Nevertheless, enter into the 21st century; Federal Reserve has carried out the extremely loosely monetary policies. From the year 2000 to 2004, the central bank continually decreases the interest rate for 25 times in order to treat the bubble burst of global economy and the pessimistic feeling of 9.11 incidence for example. But to later time, when the Federal Reserve done the operations of open market selling, the interest rate has been increased. The interest rate of subprime mortgage is according to floating rate, thus, the cost for subprime clients do the repayment became much bigger. At the mean time, the bubble of real-estate was bursting, the house price falling down; the borrowers gradually lose their motives to keep the contracts with the commercial banks. Therefore, the default rate and the rate of foreclosure became much higher.

2.4 Leverage effect

The change of the macro-economic environment leads the risks of American subprime mortgage be erupted, the default rate increasing a lot. But, only refer to the subprime mortgage itself, the world financial market could not be affected so profoundly. In the time the damage prevailing, the total volume of the American subprime mortgage is between 1.1~1.2 trillion dollars, even under the estimation of upper limit of the damage rate of 40 percent, the total losses could be calculated in about 400 billion dollars, has the proportion of only 2 percent in GDP of that time. But the authentic losses and influences, as we know, are much bigger and serious. For this, we can't forget the large series of financial derivative products have contributed a lot. For instance, the different kinds of the bond based on the subprime mortgage bought by a large group of the organizations, like the immense commercial banks, stock jobbers, insurance companies, hedge fund companies, even the retirement fund etc. and all of them have got great losses.

3. Influences of the financial crisis

3.1 General influences

To the influences of this subprime lending crisis, there are three direct parts:

First of all, after the crisis, the people most seriously destroyed are those who earn a low income, because of lack the ability to give repayment, they are facing the bad situation that their houses or apartments be withdrawn by the banks.

Later, with the time passing, there must be lots of the organizations who have the direct transactions with the subprime mortgage gain damages, even will be obliged to send the applications for bankruptcy.

Lastly, the large quantities of the American and European investment fund can also be the great losers because they have bought so many derivative bond which associated with the subprime mortgage.

3.2 Particular effects to China

Exactly speaking, the influences of the subprime lending crisis are extremely big and profound, and perhaps be different to the countries who have the different economic backgrounds. But, the above three are basic. It must be the normal problems facing by any democratic markets, bien sur , North Korea, Cuba etc. aren't include in this realm. The US. is the centre of this financial crisis, and inevitably suffered the most in the world. The immediate follower, Great Britain, who has quite the similar financial systems, financial institutions and financial laws with America. All of the western developed countries have trapped in with on exception. And to China, that will be a little bit more to considerate: China is a country who largely depend on exporting the immense number of low priced merchandise in the international market, the object countries for China to export is the developed rich countries. The special characteristic of Chinese economy is that "miraculously" big trade surplus for nearly 30 years under the special attend of our dear Party, but not based on the rules of economic principals. Easy to understand, the exchange rate of RMB in the international currency market is controlled. Facing the big demand of RMB because of the large quantities of Chinese goods be purchased, but the exchange rate is fixed, that is the key to the secret of Chinese trade surplus in such an incredible long time. My dear readers, please be patient, give the Chinese economic background is not my aim, but it's independently necessary for doing the later part of explanation. As we have already known, China is such a country relied on export. But, what is the situation for the countries who afford the big responsibility to buy Chinese merchandise? Unfortunately, America, European Union, Japan have all trapped into the subprime lending crisis. For quite a long time, China play the role of trade surplus, America, for example, play the role of trade deficit. But how can the country who has the trade deficit sustain such an extremely long time? The bond of national debt! Yes, Chinese government using the foreign deposit gained from the international trade market to circulate into the international capital market under the form of buying the bond of American national debt. Don't forget the famous equilibrium formula:

Trade balance = Net capital outflow

US take the advantage of the outflow capital to do the things he willing to do. Directly speaking, America is making debts to by Chinese goods! The terrible thing is that once the economic chain of America is broken, American people not willing or loose the ability to buy Chinese goods, the problem of over-productivity in China will explode at once! But why this hasn't been erupted before? That is because America continually has the resources of debt at high quality. But today everything has changed. The chain of debt has been polluted. The problem of Chinese over-productivity always disguised behind the high volume of debt worldwide. If the western countries give up to buy Chinese products, that must be the time for the terrible explosion in the part of our entity economy, I'm afraid we can no longer keep such a speedy developing pace, we have got to face the horrible enterprise downsizing, high unemployment rate and even greater umber of bankruptcy. Once the international economic system gets failure, we will inevitably pay out tremendous expenses.

4. The lifeboats

Surely speaking, the subprime lending crisis has no good for any country; all of the important economic entities in the world take the actual lifeboat promptly. America accepts the method of nationalization in a big scale. From the effective nationalization of Fannie Mae and Freddie Mac to the strategy of the "temporary nationalization" for using 700 billion dollars to afford the dead accounts of the financial organizations. All of the plans give American government enough authorities to buy any of the dead accounts in American financial organizations within 2 years. This will also make American national bond from 10.6 trillion to 11.3 trillion dollars. The biggest part of this plan is for the government buying Wall Street's bad mortgage in order to help to improve the balance sheets relied on the capital by issuing the national bond. Later, Treasury even prepared 2 trillion dollars in the monetary market fund for the sake of guarantee the reactions' feasibility. On the other side, the actions taken by United Kingdom might be different. Today's problem is almost every financial organization facing the shortage of capital because of the bubble burst of real-estate. If we say America only concentrate in the dead accounts, England, possibly take the actions more directive to the centre of the problems. The government of Great Britain chooses to directly circulate the capital to the commercial banks that trapped a lot into the subprime mortgage loan for better solving the problem of capital shortage, but not keep eyes in the dead account. There will be 50 billion pounds used for buying the stocks of the big financial organizations to realize

partly nationalization. At the mean time, British government promised to supply about 250 billion pounds guaranteeing the system of banks go smoothly and healthy, for the same purpose, Bank of England decide to supply an extra 200 billion pounds for short term credit. Apart from this, there is another extremely important meaning for this, If the government circulating the capital into financial organizations, as the stock holder ou il se pass des choses, the goverment can obtain the droit de propriete. Thus, if the plans of the lifeboat effective, the benefits might not be wholly gained for the people who made the things bad at the beginning.

5. Directions go ahead

After the terrible worldwide financial crisis during the year 1929~1931, unfortunately we are facing another big one today, nevertheless, it is fortunate for us to have such a chance as our grandfathers' to get a serious and impressed lesson from it. Our free market of capitalism today bien sur is much stronger and better than several decades ago, but perhaps it's hard to reach perfect. Although subprime lending crisis might be a sharp and negative shadow that could not escape in people's mind for a long time, it is not important. The most significant thing for us to do is we must ask ourselves what we have learned in such a precious lesson.

5.1 Pay attention to macro-economic policies and economic fluctuations

It is extremely necessary to highlight the analysis of the ongoing macro-economics and pay high attention to the risks could possibly brought by the economic fluctuations. For governments and central banks, adequately using the fiscal policies and monetary policies at the right time is important. Also, the alerting systems should be improved in order to predict and control the scale of the risks. Neglect of the potential risks in the step of speedy developing might be the cause of the recessions later, and even crisis.

5.2 Change of today's financial system

It is reasonable for some new policies enter into today's over structured financial system. Normally speaking, during the transactions of the mortgage bond, the commercial banks and the stock jobbers can always gain the benefits as follows: Put the eggs into different baskets, achieve the aim of decreasing and separating the risks by selling and reforming its assets. Acquire the different sorts of the commission charges and service expenses in the process of create and sell the mortgage bond. Earn benefits directly from each of the transactions. Under the observation, the transactions of the mortgage bond become one of the important resources of the income for the financial organizations. That means, to some extent, the usage of the structured finance is much over to its basic functions, and under the economic circumstances that lack of supervise, the potential risks buried this time.

5.3 Strengthen the quality of credit evaluation

Because of the different kinds of the financial derivative products are too complicated, most of the investments participators who find the risks and benefits are difficult to be estimated prefer to rely on the evaluations given by the financial evaluation firms. But largely speaking, the credit levels of the mortgage bond decided by the evaluation firms are not justice. The trait of opacity for the mortgage bonds and the possible beneficial links between the creators and the financial evaluation firms could be the cause for unfair estimation. The fast developing economic momentum demand a brand new system of evaluation who can well afford the responsibilities for cooperation.

5.4 Keep the important role of supervise

Also, we can't forget the importance of supervise. Under perfect preparation even exist potential risks. The task for the supervisory organizations to do is foresee the threatens to our financial systems as early as possible, so as to gain enough time to take the reactions.

6. Conclusion

At the end of the article, I hope I have given a clear description of the subprime lending crisis. To finish my work, I'd prefer to recommend all of the citizens to advance the basic financial knowledge, for it is penetrating into our daily lives. To do investments and decide the plan of portfolios are the common things for everybody to do, but think about the individual who even don't know the calculation of the compound interest rate and cost of mortgage loan, and excitedly join into the mortgage loan for the apartments which he could not afford the repayment at all, so terrible it will be!. Unfortunately, there are so many people in this group today. We must remember that people's crazy has little chance to conquer the market rules, the bubble burst will inevitably bring the deep tragedy and hurt to the economic society, and the people who suffered the most always be the feeble groups wrongly trapped in.

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The Influence of Organizational Culture on Organizational Learning, Worker Involvement and Worker Productivity

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Abstract

The objective of this study is to investigate the probable correspondence among organizational culture, organizational learning, and worker involvement and worker productivity. The author investigated 40 enterprises and 4 structured questionnaires were distributed within enterprises to be filled out. This resulted in 160 responses. There were 63 organizations selected for this study, but only 40 showed interest and participated in the research representing about a 63.49% response rate of the collection of data that we found important for a developing economy like Ivory Coast. A relational research design and a descriptive analysis were utilized to appreciate the correlation amongst the variables. The findings of this study revealed that there are significant correlations amongst the different variables.

Keywords: Human resource management, Organizational performance, Knowledge management, Work environment, Abidjan (Ivory Coast)

1. Introduction

People give sense and meaning to organizations because they are undoubtedly capable of giving to any organization, direction, that is, leadership, competitiveness, and organizational performance. Employees know how to push the organization for a better challenge in this turbulent and up-and-coming business environment. Employees can and should be part of the journey in giving to organizations, the potentials to meet up their customers' demands and their unambiguous and affirmed objectives or goals. Human resources (HRs) can continuously acquire new habits and productive ideas to be of assistance for organizations to change their organizations' status, that is, from bad performance to good one. People are as we know the organizations' most pertinent resource and the power (force) of the organizations is their people as well. In any sort of organizations, things are made possible or things happen thanks to people.

In the Ivorian setting, the motivation of employees is more and more becoming a genuine problem in the management of HRs. An organization centers its attention more on the development of its business systems rather than on the motivation of its internal customers to pull off important business performance. Amazing as this might be in this era of information-based economy (IBE), that is, knowledge management (KM),   today's organizations (not all of them)   in Ivory Coast are not realizing that the valuable management of HRs, a good environment and employee motivation are conditions for the fulfillment and well-being of customers in this 21st ever-increasing aggressive (competitive) global market. Organizational culture is a main element for promoting an innovative environment. The organization's culture represents the process of the way things are done. Corporate culture is the core factor, but it must also fit with the structure of organization, the management of employees, leadership style, and knowledge strategy systems (Forcadell & Guadillas, 2002).

The objective of this current work is to investigate the likely correspondence among the ensuing variables: Organizational culture, Organizational learning, and worker involvement and worker productivity in the Ivorian context as a stimulating and energized work environment motivates employees to use the potential that resides in them to

organizational performance. But also, provide recommendations to top management in Ivory Coast about the importance of providing a good, innovative work environment for employees to be productive.

2. Literature Review and Hypotheses

2.1 Organizational Culture

Organizational culture is a main element for promoting an innovative environment. The organization's culture represents the process of the way things are done. Corporate culture is the core factor, but it must also fit with the structure of organization, the management of employees, leadership style, and knowledge strategy systems (Forcadell & Guadillas, 2002). Tidd et al. (2001) hold that since many process innovations represent major changes in "the way we do things around here", the question of managing cultural change and overcoming resistance to innovation needs to be addressed.

There is a human element in the culture of an organization that cannot be left out and is the determinant in effective business performance and management of change. Moffert et al. (2002) observe that to change an organization's culture, peoples' values, norms and attitudes must be amended so that they make the right contribution to the collective culture of the organization. The right contribution is necessary because too drastic of a shift can affect the organized behavior or the established routines in very negative ways. Another aspect that must be understood is that each organization requires a different set of cultural values. If an organization is dealing with ambiguous situations that require a variety of insights, then there is a higher need for flexibility.

2.2 Organizational Learning

A culture must be established that enables each organization to operate within its knowledge demands. What must be emphasized here is that each enterprise has a different environment that requires specialization. Tidd et al. (2001) indicate that culture is an artifact of what people believe and how they behave; if there is a good fit, it will enable and reinforce innovative behavior. If it is contradictory to these beliefs for instance, restricting communication, stressing hierarchy—then it is likely to act as a brake on creativity and innovation.

Actually, if an organization's culture is centered on learning, and its structure is such that the actors within the organization can transmit knowledge, then human resources are more likely to feel empowered to learn. It is important for an enterprise to establish an environment that is apt to create and renovate its knowledge to keep pace with innovation. A knowledge-oriented culture challenges people to share knowledge throughout the organization. An organization can promote and reinforce an environment that enables learning, and hence leads to innovative capacities, through its cultural framework. The way this is done is going to be determined by the makeup and management style of each organization. Each organization has its own set of variables that must be taken into account.

Establishing a learning culture (LC) is going to require a different process and procedure to match the criteria. The management can promote its organization as a learning establishment and develop cultural norms that mitigate this cause. However, the establishment of a LC is not enough. Organizations must regenerate the emphasis through changing times. Another part of the establishment of the firm as a learning organization is the fact that it must be ubiquitous. That is, the culture of learning today within enterprises established and operating in Ivory Coast should seek for managerial employees and non-managerial employees' inputs. From the on-going arguments, we propose the ensuing:

H1: Organizational culture positively impacts organizational learning.

2.3 Worker Involvement

The term worker involvement (WI) is used to indicate that these initiatives were largely those designed and introduced by management and intended to improve communications with employees, to generate greater commitment, and enhance employee contributions to the organizations (Marchington, May 1992). Solomom (1998, third edition) observes that the nature of the relationship between employees and management in the organizations decision-making process is central to the character and conduct of the industrial relations system at the organizational level. Employee involvement (EI) or motivation assists an organization to give the best possible service to customers and clients in the most cost-effective way, it entails providing employees with the opportunity to influence and where appropriate, take part in the decision-making on matters which affect them, it is an intrinsic part of good management practice and is therefore not confined to relationships with employee representatives, and finally it can only be developed voluntarily and in ways suited to the activities, structure, and history of an organization (CBI, 1979).

Farnham (1993) holds that EI promotes business success. It does this by fostering trust and a shared commitment to an organization's objectives, demonstrating respect for individual employees and enabling employees to get maximum job satisfaction. Employees are the main targets of any participation scheme adopted by managers. And employees know this; they also feel that management use this type of participation for greater efficiency, performance and productivity.

On the other hand employers believe in the potential benefits that can be gained from a motivated worker. As a result of the discussion above, we propose that:

H2: Organizational culture positively impacts worker involvement.

2.4 Worker Productivity

Employers, regardless of what type of business they manage, know that worker productivity (WP) is the key to an organization's success. Workers who are not using their time and resources effectively are costing the company money. Miller and Monge (1986) hold that job satisfaction increases output through bringing high quality stimulus and through increasing working capabilities at time of implementation. Employees want to do the right thing and they will do so if they have the right information. Focusing on capturing timely and accurate information and sharing it with whomever needs it to do their job bring about employee productivity. Today, to compete in this turbulent business environment, organizations should be empowering their employees to quickly notify quality, production, materials management, and maintenance personnel of potential problems before adversely affecting plant operations. Communication solutions should ensure speedy and effective supervision of the ever-changing requirements of a dynamic organization operation. Visual feedback provides employees real-time updates on how they are progressing relative to daily goals. Studies (see for example, O'Relly & Pfeffer, 2002) indicate that human resource policies (HRP) that give confidence to employee involvement aim at providing employees with opportunities to have a participation in decisions, incentives to expend discretionary effort and the means to acquire the suitable skills.

In relation to the HRP (see for instance, O'Relly & Pfeffer, 2002), participation schemes directly affect the first two aspects—opportunities and incentives—and as a result are thought to improve incentives to acquire skills as well as work organization and information flows. These combined effects are expected to increase X-efficiency and productivity (Komal & Tahir, 2007). The primary goal of HRM in any organization is to facilitate organizational performance (OP). Poor performance can result from any causes, such as inability to manage, failure to prioritize, lack of skill, knowledge, or motivation and changes in performance management systems or process. However, one of the most effective ways of enhancing OP is by increasing productivity, that is, the efficiency allowing an organization to use its labor, capital, material, and energy resources to produce its output. This will bring us to test the following hypothesis:

H3: Organizational culture positively impacts worker productivity.

3. Research Design

3.1 Research approach

A research approach was utilized for the objective of this current research study to determine how to get the required data for analysis. This study consisted of two categories of employees: managerial employees and non-managerial employees who responded in filling out the questionnaires given to them within their respective organizations in Abidjan, Capital city of Ivory Coast from February 7th, 2007 to August 29th, 2007.

3.2 Research strategy

In this study, it was very interesting and important to find out what the research inquiry was about. While considering the postulations, it became clear that the study was exploratory. The theory was firmly based and explained; it was then important to determine how, why these theories were used. Silverman (1993) holds that there must be a methodology (a general approach to studying research topic), and a method (a specific research technique). It was then important to analyze the data collected within the organizations in order to understand how things happen the way that they do. This study aligns itself with the relational canon.   In Mark's (2002), Van Maanen (1983) defines qualitative techniques as 'an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world'. The research dwells on a set of explanatory concepts (Theory); propositions that can be tested (Hypothesis); a methodology. This study was set upon these same basic guidelines.

3.3 Research method

This research uses relational analysis and statistics through structured questionnaires for exploring the correlation amongst the identified variables (OC; OL; WI; WP). The researcher first designed the data gathering method and secondly found a way of analyzing them for reasonable conclusions drawing as hypotheses were to be tested.

3.3.1 Data gathering

3.3.1.1 Population and sampling

The respondents were classified as managerial employees and non-managerial employees. The managerial employees are those whose work consists mainly of directing and supervising the work of others on the employer's behalf. The managerial employees were the human resource managers (20). The non-managerial employees are those who perform

tasks not involving the direction and control of enterprise activity. The non-managerial employees were the production workers (20).

3.3.1.1.2 Structured questionnaires

To reach our objective, data was collected through four (4) questionnaires distributed within the organizations. The questionnaires were easily laid out to be completed considering the principles announced by Mark et al. (2002) namely: The clearance of the questionnaires; the avoidance of any jargon or specialist language; and the avoidance of personal questions. The 4 structured questionnaires centered on organizational culture (dependent variable) and the independent variables (learning within the organizations; employee motivation and employee performance) to investigate the correlation among them. The respondents were simply asked to select between 1 and 5, where "1" means "strongly disagree" and "5" means "strongly agree". Studies (see for example Wright et al., 1999; Ngo et al., 1998) utilized that kind of likert scale. This gave the researcher a total number of 160 responses.

3.3.1.1.3 Threat to credibility

The participants were reluctant to fill out the questionnaires. Assurance of anonymity was accepted. All the participants were willing to participate in the research. The researcher distributed the questionnaires. They provided written comments (responses) on a timely basis. All the participants showed interest in the research as they emphasized its importance.

3.3.2 Data analysis

We coded and continuously analyzed the data that was collected. The collection of data permitted to numerically code the responses given by the participants to make the data actionable. We hypothesized that organizational culture positively impacts organizational learning. The importance of a good working environment (organizational culture) is a driver for organizational learning; that worker involvement is also influenced by organizational culture; that worker productivity is positively influenced by organizational culture. The hypothetical research model (see figure 1) needed to be tested. The different hypotheses were tested through correlation, regression analyses, and a linear regression model. Therefore, we used the commercial software package for social sciences (SPSS, Version 11.0) for data coding and data analysis. The hypothetical research model and the identified variables for this investigation are revealed in figure 1.

(Insert Figure 1 about here)

4. Findings

Table 1 presents the descriptive statistics results in terms of mean, standard deviations and correlations for the different variables used in the research model.

(Insert Table 1 about here)

Table 1 indicates that there is a significant correlation between the explanatory variables, that is, the independent variables (organizational learning, worker involvement, worker productivity and the dependent variable (organizational culture). Mean for worker productivity (WP) is 4.85, whereas, the standard deviation (SD) is 2.3. This result shows that the contribution and the technological level of the employees are substantial. A positive correlation between WP (0.422) and organizational culture (OC) indicates that OC is a significant factor for organizational performance. This result is confirmed by O' Relly et al. (2000) as they hold that culture and environment are the good predictors of employees' success as a good culture and a good working environment requires that organization have the following: encourage fun in the workplace; create a good physical place to work including needed resources to do the job right; establish a mentoring program; actively promote positive relationship among co-workers; build an atmosphere of trust and fairness; and put employees on the organizations' balance sheet, to make them an essential part of the organizations' community—an inclusive, extended-family relationship. Furthermore, organizational culture is positively impacted (correlated) by worker involvement (0.343), organizational learning (0.186). Consequently, the importance of a good atmosphere within an organization as organizations that have respect for their employees give them a reason for being by engendering pride and commitment through the organization's culture that helps employees understand the organization's mission statement, vision, values, and how these apply to their day-to-day working hours will be competitive. Employees should be enthusiastic as stimulating and rewarding work environment give stimulus to employees who are motivated and dedicated for organizations to have a competitive advantage. The researcher notices a negative correlation that exists between worker turnover and the following: organizational culture (-0.212); organizational learning (-0.270); worker involvement (-0.179); and worker productivity (-0.042). This shows that the culture and environment of an organization have a considerable impact on the performance or productivity of a worker; the motivation of workers to learn; to acquire new tools and up-date their initial and professional training.

In order to achieve great endeavors, organizations in Abidjan (Ivory Coast) must for example importantly celebrate what is going on right within the organization on a frequent basis. They should also encourage positive work relations through team-building and training; and get employees at all levels involved in plans and executing celebrations of all

kinds. Organizations that are compassionate, get honest with employees are those that will be hard to leave. Recognized as valued assets of organizations, corporate culture should be managed so as to make it compatible with the requirements of corporate strategy (Beer & Spector, 1985) to key business performance drivers such as productivity, innovation and customer satisfaction.

Because human resources are "ingredients" of success for firms, investment in the management of human resources should be effective and efficient. Employees as we know are organizations' most significant resource. Therefore, due meaning should be attached to human resource management (HRM). Good HRM should be the top priority to top management. As employee motivation and implication are fundamental for capacity building, special attention should be paid to the employees' competence and motivation. Employees being at the heart of organizations, employee satisfaction should be monitored through regular employee surveys to know about their likes and dislikes to avoid employee turnover that can be costly for the organizations and disrupt work.

The findings indicate that there are noteworthy interrelationships amongst organizational culture, worker involvement, and worker productivity; that the management of human resources within enterprises requires that top management create, maintain and develop efficient organizations for them to be competitive as learning organizations can succeed in the future, and the "well-being" organizations can have employees who will be motivated and have the energy to work in the long run. To test our specific propositions, regression analysis was used through the following model:

$$OC_i = \beta_0 + \beta_1 OL_i + \beta_2 WI_i + \beta_3 WP_i + \zeta_i \qquad (1)$$

Where

The different β_i represent the parameters to be estimated. (*i*) represents the characteristic of the enterprise surveyed; its value varies between 1 and 40 corresponding to the number of the enterprises. The variables are identified like the ones done previously. ζ is the random error. It contains all the other variables that are not taken into account by the model. The regression results are presented in Table 2.

(Insert Table 2 about Here)

Table 2 highlights the regression results of the model for testing the different propositions that this research reveals. From the findings in the table under study, the variables "organizational culture" with a coefficient of 0.255 and a standard deviation (SD) of 4.74; "worker involvement" (0.497) and a 4.77 SD; "employee productivity" with a coefficient of 2.068 and a SD of 4.85 show that important correspondence is effective amongst the diverse variables acknowledged for the scope of this inquiry. As a result, the level of significance for the identified variables that is, organizational learning (0.045*); worker involvement (0.059*); and employee productivity (0.166**) also corroborates the effectiveness and the importance of relationship along with the different variables. With R^2 being 0.79, that is 79% and Adjusted R^2 of 0.75, it was indicated that the regression model was important as all the variables were statistically important. The hypothetical research model for this research inquiry can be built up consistent with the results obtained in figure 2.

(Insert Figure 2 about here)

Figure 2 reveals the research model of this study and the findings of the regression analysis. Figure 2 shows a confirmation that our different hypotheses are verified as correlations really exist amid organizational culture and organizational learning (+0.255); worker involvement (+0.497); and finally, worker productivity (+2.068). These results also indicate that corporate culture is a driver for organizations in Ivory Coast to make organizational learning effective for employee to be competitive to boost organizational performance. An organization that does not encourage organizational learning cannot be an intelligent organization as intelligent organizations are those who know that "knowledge is power". For employees (managerial workers and non-managerial workers) to be motivated and productive for the organizations that they work for in Ivory Coast, those organizations need to have a good corporate culture that gives energy to the system as a good working environment is a source of employee motivation that can move the organizations in Ivory Coast from mediocrity to excellence.

5. Conclusion

The scope of this paper was to try to investigate and understand the link that exists among the ensuing variables: organizational culture (dependent variable); organizational learning; worker involvement; and worker productivity as independent variables. We have presented the empirical tests of organizational culture; organizational learning; worker involvement (motivation) and employee productivity in 40 enterprises of different structures established and operating in Abidjan, Ivory Coast. To reach this goal, we used a relational research design and a descriptive analysis method to establish the correlation between the variables indicated earlier. The results are revealed in Table 1 and Table 2. Table 1 provides positive correlations amongst all the variables. Table 2 highlights the regression results of the linear model where the variable explained "organizational culture" shows some precisions on the nature and the degree of existing correlations.

The findings of this research reveal that organizational culture impacts organizational learning, employee motivation and employee productivity. These findings also indicate that in today's labor market, organizations need to meet a new set of employee expectation. A stimulating and rewarding work environment is key element in the equation. Consequently, there is a need for human resources to understand and feel part of organizations, and how to know their individual role contributes to the organizations as a whole. For employees in Abidjan, Ivory Coast to be productive, they need to work in an environment that energizes and stimulates. Creating a positive environment is not easy. Communication, motivating and leading people are difficult as well. Because those things mentioned above are not an easy task, organizations in Abidjan should communicate creatively by honestly sharing important information through open forums and state of organizations' meeting; keep in touch with employees without any discrimination, favoritism, nepotism at all levels through face-to face interactions; offer constant informal feedback; make expectations clear; seek employees' inputs in job-related issues. Effective communication contributes to a healthy cooperative work environment. Establishing a good organizational culture characterized by cooperation between groups, employee involvement, and active participation, trustfulness in people, open communication and information as well as empowerment are conducive to organizational performance. An organization's ability to learn and translate that learning into action rapidly is the ultimate competitive advantage. As knowledge management starts with business objectives and processes and recognition of the need to share information, business leaders in Abidjan, Ivory Coast need to establish an atmosphere that encourages collaboration and knowledge sharing.

For organizations in Ivory Coast to be efficient and healthy, they need to be able to renew themselves continuously and to foresee changes. Organizational learning is faster than the changes in the environment and this is why it is apt to manage change. As employees are their most significant resource, that resource should be structured to pay close attention to their well-being. Pettini (2002) observes that we should build organizations for people, not adapt people to organizations. We should have a vision about our work communities too. We spend the best part of our lives in different organizations. We should make these organizations ideal places to work in, be together and grow comprehensively as human beings. Our findings bring us to have a couple of suggestions that are apt to bring organizations established and operating in Abidjan to motivate employees to use the potential that resides in them to organizational performance. As motivation is one of the easiest concepts to understand, yet one of the most difficult to implement, this paper suggests that in order to motivate and retain employees, organizations in Abidjan should communicate creatively; establish a stimulating culture and environment; have respect for employees to keep them motivated and productive. They should give employee a reason for being in allowing them to understand the organization's mission statement, vision and values to name just a few. Organizations in Ivory Coast that are able to provide these key factors will get skillful and honest employees who will work toward the organization's goals and objectives.

All researches are conducted with certain limitations. The current research is no exception. Firstly, though questionnaire technique has been utilized for this study, group discussions could have been utilized as well. Secondly, the sample size is small (N=160). This is not sufficient enough to reflect the sound picture of the enterprises established and operating in the whole country (Ivory Coast) in the context of establishing the correlation among organizational culture (OC), organizational learning (OL), and worker involvement (WI) and worker productivity (WP). Therefore, there should be a longitudinal study and more sophisticated measures of OC all through the country for a much more significant assessment of the relationships among OC; OL; WI; and WP in Ivory Coast. Despite these limitations, the statistical findings of this research inquiry provide a new piece in the jigsaw of the management of human resources in enterprises in Abidjan, Ivory Coast. The evidence supports the conclusions that organizational culture significantly influences organizational learning; employee motivation; and employee productivity.

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Table 1. Means and correlations of variables

	Standard Deviation	Mean	OC	OL	WI	WP
Organizational Culture	1.4	4.46	1.000	0.186	0.343	0.422
Organizational Learning	1.1	4.74	0.186	1.000	0.034	0.322
Worker Involvement	1.8	4.77	0.343	0.034	1.000	0.167
Worker Productivity	2.3	4.85	0.422	0.322	0.167	1.000
Worker Turnover	1.3	3.44	-0.212	-0.270	-0.179	-0.042
Organizational Performance	1.2	4.24	0.145	0.317	0.128	0.451

Where as:

OC: Organizational Culture; OL: Organizational Learning; WI: Worker Involvement; WP: Worker Productivity; WT: Worker Turnover; OP: Organizational Performance

Table 2. Regression results of model

	Coefficient	Standard Deviation	t	P>ItI	95% Conf.	Interval
Organizational Learning	0.255	4.74	0.328	0.045*	0.174	0.349
Worker Involvement	0.497	4.77	0.483	0.059*	0.921	2.015
Employee Productivity	2.068	4.85	0.211	0.166**	1.490	3.293
R^2	0.79					
Adjusted R^2	0.75	F = 32.16				
Dependent variable: Organizational Culture						

Note: N= 160, * $p < 0.05$, ** $p < 0.1$

Organizational Learning

+

Organizational Culture   +   → Worker Involvement

+

Worker Productivity
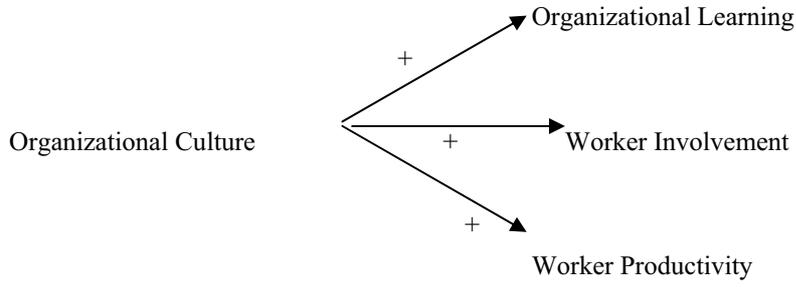
Figure 1. Hypothetical research model and variables

Organizational Learning

+ 0.255

Organizational Culture   + 0.497 → Worker Involvement

+ 2.068

Worker Productivity
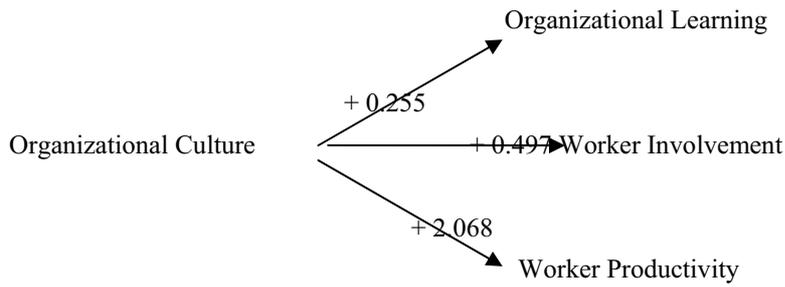
Figure 2. Research model with regression outcomes

Research on Reverse Logistics Network Design of
Household Appliances Based on Green Logistics

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Abstract

This paper first introduced the connotation of the household appliances reverse logistics, analyzed the characteristics of the household appliances reverse logistics based on green logistics, followed by comparison between household appliances reverse Logistics and general reverse logistics; Then gave the network construction elements; Finally put forward suitable design methods for such network.

Keywords: Green logistics, Household appliance, Reverse logistics, Network design method

1. Introduction

China is a big country of production and consumption for household appliances. As a special type of waste, if not properly handled, it will inevitably lead to soil or water pollution, affecting human health, and constraint the sustainable development of appliance industry. It can be an important topic that carries out less pollution green household appliances recycling.

Household appliances are comprehensive industrial products composing of metals, plastics and chemical materials, and are toxic explosive hazardous waste. This shows that it is necessary and imperative to study household appliances reverse logistics. Because household appliances have a lot of toxic substances, in order to protect the environment, in line with today's subject of green development, study of household appliances reverse logistics network design method should also be put forward in the green logistics. At the same time, household appliance is a particular general waste, so the network design ways are also different.

2. The definition of meaning

2.1 Household appliances Reverse Logistics

1998 Council of American Logistics Management (CLM) pointed out that "reverse logistics is a process that in order to recycle resources or deal with the waste materials, at a reasonable cost, move items from consumer end to the production point."(Stock J R,1992)

Reverse logistics refers to collection, classification, the demolition of the processing, packaging, re-distribution, etc

(KoPichy RJ, 1993). In accordance with household appliances, transport items to the treatment site to form the articles entities flow. In the household appliances reverse logistics activities, main is the corresponding funds and information. The purpose of the flow is as much as possible to obtain the value of household appliances, and dispose them to avoid waste of resources and to reduce pollution.

2.2 Green Logistics

Green Logistics is an environment logistics system which include both from raw material acquisition, product manufacturing, packaging, transportation, storage, to the green logistics process before reaching customers, and waste recycling and reverse disposal. Green Logistics emphasized that the process of inhibition in the logistics will do harm to the environment.

3. Reverse logistics flow

In practice, general waste is often carried out by the National Sanitation departments (Fleischmann M, 2001, P.156-173). Under normal circumstances waste are all transported to the nearest waste disposal sites by the sanitation workers, being stored through a series of technical means, the re-use and   not re-use material were piled up, and then the two substances were respectively treated. In addition, the value of general solid waste is not very high, and no harm (except hazardous waste, the same below), therefore no law made enterprise take part in.

The flow of reverse logistics based on green logistics in practice is relatively complicated, and its implementation is shown as Figure 1.

4. Network design factors

4.1 Network Nodes

Recovery node. Because the source of household appliances is often scattered, so it can not focus on a transfer to the receiving point. According to the source of household appliances and characteristics, what should decision is setting up many dispersed recycle bins, or concentrated small recycle bins, and or different levels of recycle center.

Sorting node. Different types, different quality, different situation household appliances can be used effectively after the necessary sorting. Concentrate sorting can be used to make the household appliances fully utilized through making use of a large scale equipments and high technology, but high transport costs. Sorting can sometimes scattered in the recycle bin, and no value waste can be directly sent to the disposal centers for harmless treatment, using effective way to avoid no use materials to enter the recycling network, saving transport costs.

Re-treatment Center. The recycling of household appliances is the core in the recycling network. It's the key to build an entire household appliance network that decides the site and the size.

4.2 Network Level

General material is not high value, no serious harm (except hazardous waste), and usually basically treatment facilities and equipment can be able to meet the need. General reverse logistics recovery network's core function is disposal, not having many levels.

Household appliances are complex, high-tech, and potentially harmful, so it must be handled by specialized centers or back to manufacturers in order to reduce pollution, and realize the objects of green logistics. So household appliance recycling network has a more layer than the general reverse logistics network, that is, the re-treatment center, which is a different place between the household appliance recycling network and general reverse logistics network. Based on the green logistics household appliance recycling network is as shown in Figure 2 and core function is the deep processing of household appliances.

Insert Figure 1 here

Insert Figure 2 here

4.3 Waste Disposal Site Settings

For general waste, there is no law expressly requested manufacturers to implement waste logistics (Fleischmann M, 2000, P.653-666), so recycle bin is unified required to plan and construct by environmental protection departments. As to the household appliance, whether foreign or domestic, it explicitly required appliance manufacturers to be responsible for recycling of waste treatment, with emphasis on the harm to the environment. At the same time, realize the purification, so that the logistics resources can be fully used.

General waste can be locally destroyed, or transported to the relevant departments. The location of waste disposal can not be considered in the overall network, but choose to directly focus. But household appliances are particular, because there are a large number of toxic substances. Meanwhile it should stick to relevant environmental laws and regulations. Some household appliance should not be carried out to other place, can only be disposed locally.

4.4 Network Openness

Most main aspects of general reverse logistics are simple, easy to handle, therefore the degree of openness is more clear and easy to design.

Household appliance reverse logistics depending on different subjects shows different characteristics in the degree of openness in its network. The recycling for parts and raw materials is generally open-loop structure; that is to say, the end point of household appliance will not be back to the original manufacturers or suppliers, not used by other manufacturers.

In need of repair or renovation it usually points the original source, belonging to the closed-loop structure. In reality, in order to better establish the overall network, a composite structure is used in the household appliance reverse logistics network design. It is as shown in Figure 3.

Insert Figure 3 here

5. Network design methods

Compared to the general reverse logistics networks, household appliances reverse logistics network design based on the green logistics has its own characteristics, so it should not also adopt the general approach in the network design method. It should focus on a new network design method. In this paper, because the study on household appliances reverse logistics network in the hierarchical structure is more complex, at the same time green environmental protection becomes the focus, and therefore, this network design method used the Theory of Constraints (TOC)

Theory of Constraints are about to improve and best implement these management concepts and principles, then it can help enterprises realize the constraints - referred to as "bound" and further pointed out how to use the necessary improvements to eliminate constraints, so as to effectively realize goals (HuTung, 2002, P.457-473). Meanwhile industrial pollution will also make some improvements. According to this article related network characteristics and requirements of Green Logistics, TOC theory emphasize the following three points: (1) to increase effective Throughput; (2) reduce inventory; (3) reduce operating costs; (4) reduce pollution

Assuming that the network has three components, namely the consumer market (recovery point), testing center and the secondary market (demand points). First instruct the involving variables in the following methods.

Symbol:

i — the recovery number after treatment by the test center product

j —Recycling product number

m — Demand point number (secondary market)

u — Recovery point number

t — Testing Center Number

Decision variable:

X_{itm} — after treatment the i product quantity delivering from the t testing center to the m demand point

X_{jut} — the j recycled products quantity delivering from the U recovered point to the t testing center

Model parameters Description:

P_{im} — the accept price of the i recycled product after treatment for the m demand point

C_{jut}—Unit transportation cost of the j recycling products delivering from the u a recovery point to the t testing center

C_{itm}—Unit transportation cost treatment of the treatment i product delivering from the t testing center to the first m demand point

P_j — Unit recycling prices of the j Recycling Product

θ_{ju} —Largest supply for recovery point u to the j Recycling Product

η_{ij} — Into the i Recycling Product largest supply

μ_t — the t testing centers available capacity

D_{im}—the demand for the m demand point to the i Products

V— Unit consumption costs needed to deal with pollution in the whole delivering process

Based on the above symbol, we will build the network design model.

$$\max T = \sum_{i=1}^{I}\sum_{t=1}^{T}\sum_{m=1}^{M} P_{im}X_{imt} - \sum_{j=1}^{J}\sum_{u=1}^{U}\sum_{t=1}^{T}(C_{jut}+p_j+V)X_{jut}$$

$$s\,t.\sum_{j=1}^{J}\sum_{t=1}^{T} X_{jut} \leq \theta_{ju} \tag{1}$$

$$\sum_{i=1}^{I}\sum_{m=1}^{M} \eta_{ij}X_{itm} \leq \sum_{u=1}^{U} X_{jut} \tag{2}$$

$$\min \mu_t \leq \sum_{i=1}^{I}\sum_{m=1}^{M} X_{itm} \leq \max \mu_t \tag{3}$$

$$\sum_{t=1}^{T} X_{itm} \leq D_{im} \tag{4}$$

$$X_{itm},\, X_{jut} \geq 0 \tag{5}$$

6. Conclusions

Recycling of household appliances is in fact a system of social engineering. This paper proposed several aspects of network design which should be paid attention to, then use TOC theory to design the reverse logistics net, considering pollution factors. Through this method it can solve the particularity of household appliances reverse logistics network design. All provide effective ways to green design for household appliance reverse logistics.

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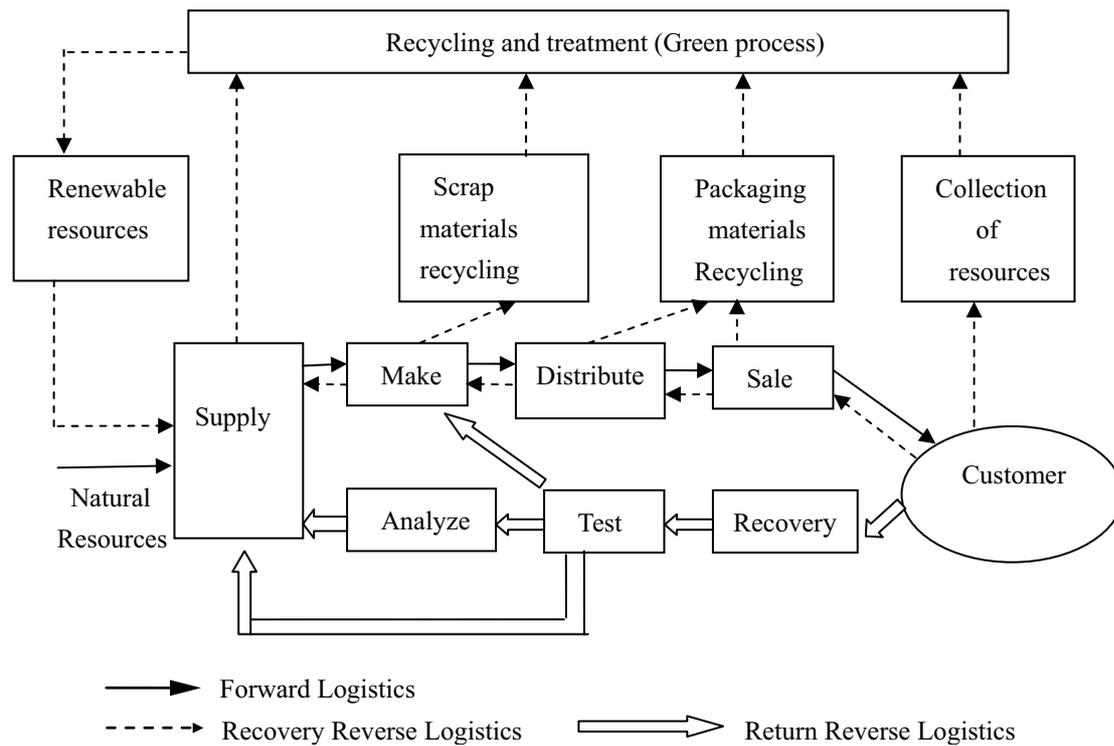
Figure 1. Flow of Reverse Logistics Based on Green Logistics
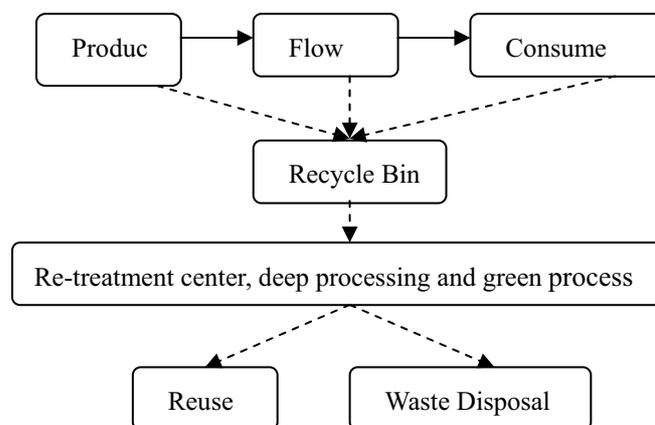
Figure 2. Reverse Logistics recycling network of waste home appliances based on Green Logistics
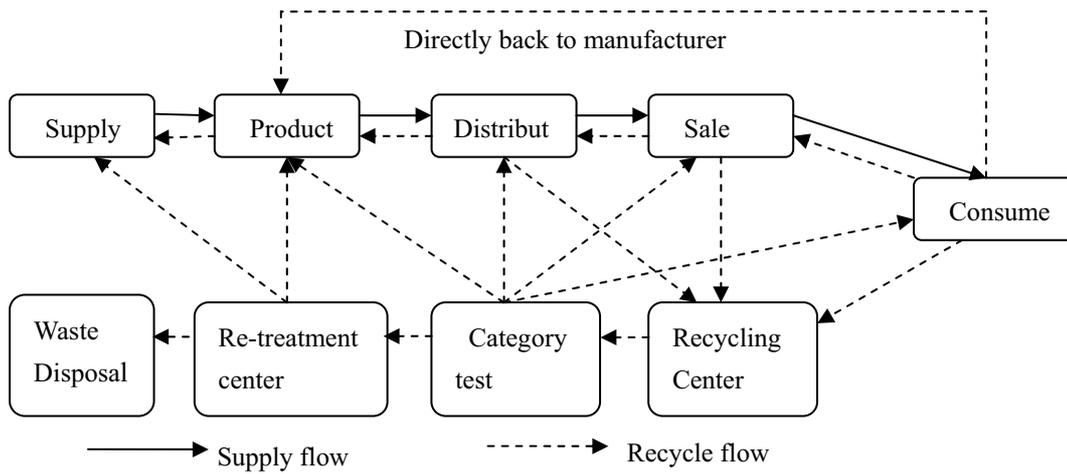
Figure 3. Compound recycling network of household appliance reverse logistics

Perceptions of Firms Learning and Growth under Knowledge Management Approach with Linkage to Balanced Scorecard (BSC): Evidence from a Multinational Corporation of Bangladesh

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Abstract

The study attempts to measure organization's perception on learning and growth with the help of Balanced scorecard model in a multinational firm of Bangladesh.That is to say, in this paper it has been shown how a proper and effective knowledge management can make possible the organization's financial success that can be revealed using the Balanced Scorecard (BSC) framework. Additionally, the perception about knowledge management , its linkage to the BSC and its usage have been identified. Primary data collected for conducting this emperical research was carried out through survey method using structured questionnaire. Data were then analysed with the help of bi-variate and multi-vatiate techniques of statistics. Empirical results of our study suggest that learning and growing organization is one in which knowledge management activities are deployed and expanded with a view to leverage the creativity of all the people in the organization The result also evidenced that BSC, as a strategic performance measurement tool, helps in strategic management by linking some strategically significant, relevant, and interrelated measures or indicators with organizational emphasis on knowledge and learning initiatives .

Keywords: Knowledge management, Financial Perspective, Non-financial perspectives, Learning & Growth, Bangladesh, MNC

1. Introduction

Knowledge has become the key economic resource and yet the only source of competitive advantage (Drucker, 1995). Nowadays, organizations compete in a complex and dynamic environment. That is why for achieving the organizational goals in the long run, a thorough understanding and monitoring of the overall business environment and appropriate implementation of the well-developed strategies through proper strategic management are essential. Strategic management process has been described as an objective, logical and systematic approach for making major decisions in all organization (David, 1999) which attempted to organize qualitative and quantitative information in a way that allows effective decisions to be made under the conditions of uncertainty. Stephens (2000) illustrated that a successful strategic management demands proper collection of information and knowledgeable utilization of information. According to management 'Guru' Peter Drucker (1995), "Knowledge is the only meaningful resource today". Berdow and Lane (2003) opined that now a days sharing and managing of knowledge have become a key issue of getting success for every organization in the highly competitive market. Human knowledge is considered as one of the most valuable intangible resources of an organization. It has been claimed that knowledge is the critical resource of the future. Knowledge is created through a blend of data and information by the human and this mixture is done through using

people's own intuition (immediate insight) and experience in order that this knowledge adds value in taking actions. "It includes not only the 'old knowledge' that is in people's heads or the organization's databases but also the 'new knowledge' that is generated when people work with information from sources such as the Internet or when they work together with practitioners or communities of practice"(Stephens, 2000). When raw and unorganized data are organized and given a proper shape for using in a particular purpose, it becomes information. To become knowledge, all these data and information should be mixed with the intuition and experience of the human resource of the organization. Today's business environment is characterized by continuous, often radical changes climate. Such a volatile climate demands a new attitude and approach within organizations in where actions must be anticipatory, adaptive and based on a faster cycle of knowledge creation. Zander and Kogut (1992) measured 'organizational knowledge' that includes operational routines, skills, procedures and (know-how) as the most priceless asset of an organization. Knowledge management is a large issue that focuses on the full range of processes including the acquisition, retention, storage, distribution and use of knowledge in the organization. Management experts agree that learning and growth are the means of strategic victory, the basement for the future. Researchers (e.g. Zander and Kogut 1992; Kaplan and Norton ,1996 ; Hoque et.al, 2000) echoed that learning and growing organization is one in which knowledge management activities are employed and expanded so as to support the workmanship of all the persons in the organization. In a knowledge-based organization, human beings are the only holding pool of knowledge. In the existing business atmosphere of expeditious technological evolution, it has been becoming substantive for knowledge workers to be a part of ceaseless learning domain. Kaplan and Norton (1996) highlighted on 'learning' more than just 'training' (Kabir, 2005). It also includes technological tools that help in learning and growth. Kaplan and Norton (1996) initiated the Balanced Scorecard (BSC hereafter) approach, a competent and conversant mechanism for successful strategic management. The BSC approach conceives learning and growth through 'knowledge' as the foundation for organizational success.

In Bangladesh Multinational Corporations (MNC) operates in a highly competitive environment due to the competition with other MNC and some local conglomerate(Ishtiaque et.al, 2007).This intense competitive and fast changing business environment increasingly demands more accurate and perfect information to measure business performance not only to get competitive advantage over others but only to survive. For the convenience of study a Multinational organization has been chosen who operates in Bangladesh for last several years. Moreover, the products and menufacturing process studied for this research is mobile phone sets. MNC's are a good source to provide enriched required information BSC implementation and it could be a solid platform to emperically test some undering theorical hypothesis (Hoque et.al, 2000) . In this regard , MNC's perception regarding learning and growth under Knowledge management approach that would be linked with the Balanced Scorecard model in the firm's operation has been analyzed. BSC which is a measurement, strategic management and communication tool that enables organizations to translate a company's vision and strategy into implementation, may provide more accurate and relevant information to MNC's by linking their strategies with their action.

The main objectives of this article are to connect Learning and Growth under Knowledge Management approach with BSC in Multinational organizations, and to establish the fact that the success of knowledge management can be measured by Balanced Scorecard. Besides, the paper aims to achieve following specifics objectives (a) To identify the extent of use of BSc in the Multinational organizations operating in Bangladesh. (b) To provide a general view of employees about the importance of employee learning and growth. (c) To identify the key ways to increase organization's learning ability. (d) To recommend on proper use of employees learning and in excelling their job knowledge

Therefore, this paper is effectively developed through the given sequence: Following the introduction, it has focused on the review of literature and development of the hypotheses have been depicted to make it more reliable and valid.This is followed by the research method applied for the study. Next, emperical findings is provided for the result of the hypotheses.The last section highlights recommendations along with conclusions and limitations of the study.

2. Literature review and hypotheses development

Knowledge management implies a range of practices used by organisations to identify, create, represent and distribute knowledge for reuse, awareness and learning across the organisations. This programs attempt to manage the process of creation or identification, accumulation, and application of knowledge across an organisation (Davenport and Prusak, 1997). Knowledge management has been defined by many authors from different perspectives. Some of them thought it commercially while few others in another form" ... knowledge is all about the *need to know* to be competitive (e.g. Time to Market). This *need to know is* ultimately necessary for our survival, and in particular, to enhance our decision-making processes, although our successes will ultimately depend on worthy, on-time and on-line know how - knowledge" (Davis, 2002). In order to know something, a human being has a number *of* resources available in his/her environment. These resources can be data, information, expertise, intuition, life experiences, opinion from different people, several published documents, etc. In business, knowledge is all about the need to know to become competitive in the market. This *need to know* ultimately helps in surviving in the long run and it also enhances the

decision-making processes. Myers (1996) addressed Knowledge management as "... we call identify and then manage- organizational knowledge only to the extent it has been captured by all organization systems, processes, products, rules, and culture" (p.23). The victory of a business depends on meritorious, on time deployment of knowledge. Knowledge arising from intuition and experience is indispensable in making good strategic decision, which is particularly practical for making decisions where there is an immense uncertainty. This should be complemented with strategic management analyses. Most organizations benefit from strategic management that is based upon knowledge creation and analysis in decision-making. Business organizations can get competitive advantage in hyper competitive markets by developing organizational knowledge through strategic planning (Akhter, 2003). In the research report published by KPMG (2000), knowledge is mentioned as "about customers, products, processes, competitors etc" that can be codified in people's mind or in an explicit form. Prior research studies (e.g. BML Consulting, 2002; Berdow and Lane, 2003) pointed knowledge management out as 'A company's knowledge must include technical knowledge as well as knowledge about how to function in the global market, work with local laws, how to protect intellectual property, and how to operate successfully in various forms of partnerships. Businesses can only survive and thrive by exploiting every possible advantage in the increasingly competitive market. Therefore, now a day, it is well accepted all over the globe that a sustainable competitive advantage and profitability depends highly on how a company creates and shares its knowledge (Desouza, 2003). This competitive environment begets the theme of knowledge management in the mind of management thinkers.

Stephen (2000) opined this as "Knowledge management is getting the right knowledge to the right people at the right time to serve the right objectives. It is a management philosophy that combines purposeful information management with a culture of organizational learning in order to improve the business performance. It should be the task of the organizational leaders to create an environment in the organization for managing the knowledge. Knowledge management involves connecting people through developing a culture of sharing knowledge and discouraging 'hoarding' of knowledge." To serve the market in an efficient way it is crucial that the human resource of an organization should be well updated about the market and their responsibilities. Today's organizational employees and decision-makers need to be information knowledgeable (Drucker, 1992). The use of Information Technology (IT) has led to a new era of sharing information and knowledge to them. The information system can create smart human who has the capability to anticipate the market (Stephens, 2000). The employees should always focus on the activities of their competitors and the demand and behavior of their customers. For this, they need information in advance for which information technologies have improved the ability to manage both information and knowledge from the aspects of collection, storage, and circulation. The success of knowledge management activities rely on people who appropriately use the knowledge exchange and utilization process. Through this, people can have better idea about their organization and know how several options can well be utilized. However, a few things are to be   rememberd   here that knowledge management does not have a beginning and an end, it is ongoing, organic and ever-evolving.

3. Organizational learning and Knowledge Management

Organizational learning has become an increasingly important concept in today's business world. Awad et al (2004) defined it as:" The development of insights, knowledge and associations between past actions, the effectiveness of those actions, and future action" (p.8).Therefore it is argued that learning and knowledge management are two key aspects of judging a successful company.

In a 'knowledge company', knowledge is more easily transferred and made accessible to workers throughout the organization. When people have access to organizational knowledge, they can understand their environment and give it meaning. This can assist them performing better through continuous learning, share a vision and ultimately help the organization to become competitive. The financial, customer and internal perspectives generally lead to knowledge of weaknesses in an organization's infrastructure, skills, automation which are restricting the organization to achieve better results. Focusing on these helps development of suitable measures to ensure that organization channels it's investments properly to address all needs not only for infrastructure, but also on research and development, human capital development, improving employee satisfaction and increasing employee motivation. Organizational learning ability can be increased by a number of ways. Rampersad (2002) pointed these out as (1) Creating conditions whereby people are willing to apply their knowledge, share and intensively exchange it with each other (2) establishing the organizational structure in such a way that people get sufficient space and opportunities to gain experiences and thinking (3) Stimulating employees to formulate their own personal Balanced Scorecard and through this cultivate a positive attitude toward improvement, learning and development(4) Making an inventory of the learning style and aligning it to the personal ambition, reviewing this periodically; aligning it to the planning, coaching and appraisal meetings and the 360˚-feedback system (5) Establishing improvement teams in which a balance of personalities, skills and learning styles is present (6) Developing and accepting self knowledge regarding their own favourite learning style and the ones of other team members, Giving people a sense of direction based on a shared ambition and linking them to each other (7) Working with teams where team learning is central; teams that think and act from a synergetic perspective, and are well coordinated, with a feeling of unity (8) Using images, metaphors and intuitions to share and exchange implicit

knowledge and working with self-directing teams in an organizational network, using generalists with ample responsibilities and competences and where there are knowledge overlaps and task rotations between employees (9) Stimulating employees to think about, identify and solve common problems as a team, letting traditional ways of thinking, constantly develop their own skills, allowing them to acquire experience and allow them feel responsible for company and team performances (10) Having leaders who coach, help, inspire, motivate and stimulate, are action oriented, and constantly evaluate processes based on performance measures (11) Having people who continually learn from their mistakes and openly communicate with each other, and constantly apply Deming's and Kolb's learning cycles in their actions Systematically working with problem solving methods (brainstorming, problem solving cycle, risk management etc (12) Giving feedback about improvement actions undertaken. and (12) Implementing a knowledge infrastructure; internet, intranet, library, evaluation sessions where   allowing employees to concentrate on everything that happens in the organization.

4. The Balanced Scorecard (BSC) approach and its application:

The Balanced Scorecard (BSC) is a measurement, strategic management and communication tool (Kaplan and Norton, 1996). It is a measurement tool because it helps organizations to identify quantifiable measures of performance. In the recent past organizations rely solely on financial indicators as the measures of their business performance. This has proved grossly inadequate essentially because financial indicators are only a reflection of the past performance with little or no relevance to the future. The BSC balances the financial indicators with non- financial indicators of performance. It is also viewed as a strategic management tools because it helps organizations to make parallel of individual objectives with the corporate objectives. BSC is also called the communication tool because it communicates an otherwise unknown strategy of the organization to the employees. (Ogundipe, 2003). BSC introduced by   Kaplan and Norton (1992) is a concept for measuring a company's activities in terms of its vision and strategies, for letting managers a comprehensive view of the performance of a business. Managers, using this BSC approach, do not have to rely on short-term financial measures as the sole indicators of organization's performance (Kaplan and Norton, 1996).The BSC approach allows managers to look at the business from four different perspectives. It provides answer to four basic questions which are shown in the following diagram.

Insert Figure 1 here

As the name suggests, "Balanced" calls for a balance between financial and non-financial measure, long term and short-term objectives and external and internal performance. Scorecard' initially came into being as a measurement system, and gradually evolved into a core management system. Balanced Scorecard continues to emphasize on the financial performance measure but at the same time highlights future performance drivers, key initiatives to be taken and provides a framework for strategic management. It has been designed around four perspectives - financial, customer, internal business process and learning and growth.

Balanced Scorecard articulates customer and market-based strategy that will deliver super value to customer, build customer loyalty and bring superior financial results. It specifically looks at the value proposition that the organization will deliver to the customer in target market segment. It identifies critical new internal processes in which the organization must excel for future financial performance. In BSC, financial perspective is always important. Hoque et.al (1997) mentioned that healthy revenue growth, proper utilization of assets and investment strategy are also necessary for any organization. Here, key indicators are operating income, Return on Investment (ROI), Net Profit (NP), Earnings per Share (EPS), Sales growth, Generation of cash flows and Economic Value Added (EVA) (Evans, 2004; Banker et al, 2004; Lipe & Salterio 2000 ; 2002)

In Internal Business Process perspective key indicators are product design, product development, manufacturing efficiency and quality. This perspective allows the managers to know how well their business is running, and and whether its products and services conform to their mission. Customer satisfaction perspective includes customer satisfaction survey (Kaplan and Norton, 1996a; Evans , 2004) customer retention (Hoque *et.al,* 1997) new customer acquisition, customer response time, market share(Evans, 2004; Banker *et al* . 2004; Zimmerman, 2003; Malina and Selto, 2001; Kaplan & Atkinson, 1998; Kaplan & Norton, 1996a**)** , post-sales service (Evans, 2004; Kaplan & Norton, 1996a; Hoque , 2003) and customer profitability. Learning and growth perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement, Investments in new Technology (Zimmerman, 2001; Kaplan & Norton,1996a);Innovative Products & Services (Evans, 2004; Kaplan &   Norton1996a). It also includes information such as intellectual abilities of employees, information systems, and organizational procedures to manage a business and adaptation ability to changes, employee's training and development and employee satisfaction. (Kaplan & Norton, 1996a; Istiaque et al ,2007; M. Lebas, 1995). It is noteworthy to mention here that Kaplan and Norton do not   disregard   the traditional need for financial data. Timely and accurate financial data is always relevant, important and managers should always provide it. However, it is important to state that the emphasis on only financial performance measurement tools leads to an unbalanced decision. This is because it   shows   fairly a disregard to other important perspectives. Recent management philosophy   emphasizes on the importance of customer

focus and customer satisfaction in any kind of business. There is no doubt that if customers are not satisfied, they will eventually find some other suppliers who will meet their needs. In such case,even if current financial performance shows a good picture, an unsatisfactory performance from customer perspective may result in a future deterioration. That is why organization put greater emphasis to address of all the perspectives of BSC that are strategically linked with the overall mission and vision of the organization.

The basis premise of BSC is that learning is necessary to improve internal business process, improving business process is necessary to improve customer satisfaction and improving customer satisfaction is necessary to improve the financial results. (Garrison and Noreen, 2000). Basically it indicates some cause- and - effect relationship among the perspectives (Aidemark, 2001). Kaplan and Norton (1992) stated these relationships showed in the following Figure.

Insert Figure 2 here

A   research survey show that 60% of the Fortune 1000 firms have experimented with the BSC approach (Sild, 1998). But Hoque et. al. (1997) stated that little evidence is available outside the US on current practice of BSc practice in multinational organizations. Adopters include organizations like KPMG Peat Marwick, Allstate Insurance, AT & T etc. (Chow et. al, 1997). However, many other researches suggest that there has also been increased evidences of using Balanced Scorecards outside the USA. A semi-structured interviews conducted by Malmi (2001) in 17 organizations in Finland found the widespread application of BSC approach. Kald and Nilsson (2000) in their research study on oil Nordic countries (Danish, Finish, Norway, Swedish) found that a majority of the companies of these countries have adopted BSC. According to Atkinson et al (1997), BSC has the potential to provide planners with a way of expressing and testing a sophisticated model of cause and effect in the organization, a model- that provides managers with a keystone to manage desired and actual results. Otley (1994) states that "it seems clear that the BSC approach has something to offer, but also that the study of management control is more complicated and more contingent than previously recognized". The BSC is among the most significant developments in the management accounting and thus deserves intense research attention (Atkinson et. al, 1997).

Hypotheses Development

From the abovementioned extensive discussion of past literature, the following hypotheses have been formulated to develop the empirical model of the study. It is noteworthy that all these perspectives are interrelated and affect significantly the financial performance of an organization.

Learning and Growth Perspective, Internal Business Process Perspective,

Customer Satisfaction. Financial Perspective.

$H_0 : \mu_{X_1} = 3$	$H_0 : \mu_{10} - 3$	$H_0 : \mu_{X_{18}} = 3$
$H_i : \mu_{X_1} \neq 3$	$H_i : \mu_{X_{10}} \neq 3$	$H_0 : \mu_{X18} \neq 3$
	$H_0 : \mu_{11} - 3$	$H_0 : \mu_{X_{19}} 3$
$H_0 : \mu_{X_2} = 3$	$H_i : \mu_{X_{11}} \neq 3$	$H_i : \mu_{X_{19}} \neq 3$
$H_i : \mu_{X_2} \neq 3$		$H_0 : \mu_{X_{20}} 3$
$H_0 : \mu_{X_3} = 3$	$H_0 : \mu_{12} - 3$	$H_0 : \mu_{X20} \neq 3$
$H_i : \mu_{X_3} \neq 3$	$H_i : \mu_{X_{12}} \neq 3$	$H_0 : \mu_{X_{21}} 3$
$H_0 : \mu_{X_4} = 3$	$H_0 : \mu_{13} = 3$	$H_0 : \mu_{X21} \neq 3$
$H_i : \mu_{X_4} \neq 3$	$H_i : \mu_{X_{13}} \neq 3$	$H_0 : \mu_{X_{22}} 3$
$H_0 : \mu_{X_4} = 3$	$H_0 : \mu_{14} = 3$	$H_0 : \mu_{X22} \neq 3$
$H_i : \mu_{X_5} \neq 3$	$H_i : \mu_{X_{14}} \# 3$	$H_0 : \mu_{X_{23}} 3$
$H_0 : \mu_6 - 3$	$H_0 : \mu_{15} = 3$	$H_0 : \mu_{X23} \neq 3$
$H_i : \mu_{X_6} \neq 3$	$H_i : \mu_{X_{15}} \neq 3$	$H_0 : \mu_{X_{24}} 3$
$H_0 : \mu_7 = 3$	$H_0 : \mu_{16} = 3$	$H_0 : \mu_{X24} \neq 3$
$H_i : \mu_{X_7} \neq 3$	$H_i : \mu_{X_{16}} \neq 3$	$H_0 : \mu_{X_{25}} 3$
$H_0 : \mu_8 - 3$	$H_0 : \mu_{17} = 3$	$H_0 : \mu_{X25} \neq 3$
$H_i : \mu_{X_8} \neq 3$	$H_i : \mu_{X_{17}} \neq 3$	$H_0 : \mu_{X_{26}} 3$
$H_0 : \mu_9 - 3$		$H_0 : \mu_{X26} \neq 3$
$H_i : \mu_{X_9} \neq 3$		

Where, μ = Mean score;

X_1 = Employee suggestions are encouraged by the management.

X_2 =Organization conducts frequent trainings and development program for employees.

X_3 = Employee turnover is low.

X_4 = Number of hours spent for training per employee is high.

X_5 = Job security is ensured.

X_6 = Knowledge and learning competences are part of every employee's competence profile.

X_7 = Organizational knowledge is shared through informal contacts, internal lectures, *conferences,* problem solving and project review meetings, dialogue sessions, memos, etc

X_8 = Knowledge sharing is facilitated through internet, intranet, library, comfortable meeting rooms, auditorium, computerized archive and documentation system, etc.

X_9 = Making mistakes is allowed; failures are tolerated and not penalized. People learn from each other's   mistakes, and errors are openly discussed**.**

X_{10} = The necessary knowledge for important decisions is usually readily available and easily accessible.

X_{11} = There is a continuous collective learning effort to develop the core competences of the organization.

X_{12} =Users friendly communication and information systems are used to spread the knowledge among all the employees.

X_{13} = Management Information systems (MIS) are integrated and continually updated.

X_{14} **=** Gathered Knowledge is constantly being implemented and incorporated into new products, services and processes.

X_{15} = There is an active program for developing ideas. Based on this, new knowledge is continually generated and used in the improvement of business process

X_{16} = On time(Proper) deliveries are high in all deliveries

$X_{17=}$ Percentages of defect free units are high of completed units.

$X_{18\,=}$ Improved business process acquiring from learning lead to improved products and service to the customer and their satisfaction.

$X_{19=}$ Customer satisfaction is measured by survey results**.**

$X_{20=}$ Product return policy is satisfactory to customers.

$X_{21=}$ Percentage of customer retention has risen from last period.

$X_{22=}$ Number of new customers has increased from last period.

X_{23} =satisfied and loyal customer leads to increased revenues

X_{24} = Gross margin percentage has increased from the last period

X_{25} == Net profit percentage has increased from the last period

X_{26} = ROA percentage has increased from the last period.

Insert Figure 3 here

Research Method

The nature of the research process is quantitative research. Both primary and secondary data have been collected for this study. Primary data have been collected through personal interview from respondents using the structured questionnaire. On the other hand, secondary data were accumulated from different published text books, related journals, reports, and research works.Structured questionnaire was used in tapping the information which was designed in the light of the objectives of the study according to the pattern of the Balanced Scorecard model (Garrison and Noreen, 2000). In this study, interval scale was used to detect all the factors which touch all the four dimensions of Balanced Scorecard model and the technique was five point Likert scale anchored at the numeral 1 with the verbal statement 'strongly disagree' and at the numeral 5 with the verbal statement 'strongly agree'. The questionnaire was pre-tested several times to ensure

that the wording, format, length, and sequencing of questions were appropriate.

In designing the sampling process, the target population includes those sampling elements that are involved with the target company (MNC) and are associated with at least five years. Due to the privacy policy of the study, the name of the company has not been disclosed. As a technique, stratified random sampling (Zikmund, 2003) was applied (as the samples are internally homogeneous and externally heterogeneous) with a view to increase precision by dividing population into strata i.e. customers and employees of the organization. Then sampling elements are selected from each stratum by applying Simple Random Sampling (SRS) procedure. In this case, sample units were 2 and sample size was 60 both for the employees and the customers. Surveys are burdened with problems linked to measurement error and bias, problems that may be aggravated when the survey is written in the respondents' second official language. (The concern of language is, conceivably, less important in the Bangladeshi perspective where fluency in English is very common, especially among top managers due to their high academic background and professional attainment).In the study, the Cronbach's Alpha test had been used in order to assess whether the variables accumulated to calculate the four factors were reliably measured. The results of this test ($\alpha = 0.6104$) as shown in Table 1, indicates that all variables are effectively measured since all four factors' Cronbach's Alpha reliability values are above 0.60 (Nunally, 1978 and Bagozzi, 1994).

Malhotra (2004) states Cronbach's Alpha as:

...is the average of all possible split-half coefficients resulting from different ways of splitting the scale items. The coefficients vary from 0 to 1 and a value of 0.60 or more indicates satisfactory reliability.

To conduct data analysis, at first, all hypotheses under each four perspectives have been tested for their significance by paired comparison t test through SPSS program and then finally the acceptance of a hypothesis has served the basis for further analysis. The data analysis part of the research includes identification of several variables in each four perspectives: Learning and growth perspective (13), Internal business process perspective (4), Customer perspective (5) and Financial perspective (4), then through factor analysis the variables have been rotated and the major variables have been discovered through which significant portion of the changes in each of the perspectives outcome were explained.

Discussion of Empirical results

Emperical Results of hypotheses testing (One sample T test)

Learning and growth (Knowledge Management) perspective:

The result of above hypotheses reveal that hypothesis denoted through X_3, X_4, X_6, X_7, X_8, X_{10} are significant and therefore accepted as their derived probability is less than 0.05 (See appendix). However, X_1, X_2, X_5, X_9, X_{11}, X_{12}, X_{13}, are not accepted as the derived values of these hypotheses (0.081,0.135,0.646,0.684,0.066,0.546 and 0.155) are greater than 0.05. Thus findings reflect that employees turnover is low; Number of hours is spent for training per employee is high; Knowledge and learning competences are part of every employee's competence profile, Organizational knowledge is shared through informal contacts, internal lectures, conferences, problem solving and project review meetings, dialogue sessions, memos, etc; The necessary knowledge for important decisions is usually readily available and easily accessible. However, it is also reflected that employee suggestions are not considered by the top management; The organization does not conduct frequent training and development program for employees; Job security is not ensured; Making mistakes are not allowed; failures are not tolerated and penalized. People learn from each other's mistakes, and errors are not openly discussed; Continuous collective learning effort to develop the core competences of the organization is not available; Users friendly communication and information systems are not used to spread knowledge among all employees And Management information systems (MIS) are not integrated and continually updated.

Internal Business Process perspective:

The result of above hypotheses reveal that hypothesis denoted through X_{14}, X_{16}, X_{17}, are significant and therefore accepted as their derived probability is less than 0.05 (See appendix). However, X_{15} are not accepted as the derived values of the hypotheses (0.255) is greater than 0.05. Thus findings reflect that gathered knowledge is constantly being implemented and incorporated into new products, services and processes; on time (Proper) deliveries are high in all deliveries; Percentages of defect free units are high of completed units. But in the organization, there is no active program for developing ideas and based on this, new knowledge is continually generated and used in the improvement of business process**.**

Customer Satisfaction perspective :

The result of above hypotheses reveal that hypothesis denoted through X_{18}, X_{20}, X_{21}, X_{22}, are significant and therefore accepted as their derived probability is less than 0.05 (See appendix). However, X_{19} are not accepted as the derived values of the hypotheses (0.077) is greater than 0.05. Thus findings reflect that Improved business process acquiring from learning lead to improved products and service to the customer and their satisfaction; Product return policy is

satisfactory to customers; Percentage of customer retention has risen from last period; Number of new customers has increased from last period.However, in this organization, Customer satisfaction is not measured by survey results.

Financial perspective:

The result of above hypotheses reveal that hypothesis denoted through $X_{23,}$ $X_{24,}$ $X_{25,}$ X_{26}, are significant and therefore accepted as their derived probability is less than 0.05 (See appendix). Thus findings reflect that satisfied and loyal customers lead to increased revenues; Gross margin percentage has increased from the last period; Net Income percentage has increased from the last period; ROA percentage has increased from the last period.

Results of factor analysis

Factor analysis was performed with the primary goal of data reduction and data summerization.The principal components method, using varimax rotation, reduced the 26 explanatory variables to 4 factors. [Malhotra, 2004]. For the sake of convergent validity, 0.4 was used as a factor loading cut-off point. Factors including less than two items were eliminated. [Jabnoun, 2003]. A principal components analysis (PCA) with varimax rotation was performed for four broad measures to determine their groups. However, prior to performing PCA, the suitability of data for factor analysis was assessed dully. An inspection of the correlation matrix revealed the presence of many coefficients of 0.30 and above, signifying that factor analysis is considered appropriate (Pallant, 2001). The Bartlett Test of Sphericity and Kaiser-Meyer-Olkin (KMO) were also used to assess the factorability of the data. The results indicate that the Bartlett Test of Sphericity (Bartlett, 1954) reached statistical significance (Chi-Square = 929.65, $p < .01$) and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.76, exceeding the recommended value of 0.60 (Kaiser, 1974). These results suggest that the factorability of the data is considered appropriate.

Interpretation of the factor loading matrix was straightforward. The factors are extracted in such a way that the first factor accounts for the highest variance in the data, the second the next highest and so on. Each table lists the factors in the order in which they were extracted. Therefore, Factor analysis has guided us to identify the variables which have high degree of involvement to the Balanced Scorecard as well as the variables which are comparatively less prominent in this regard [Malhotra, 2004].

Learning and growth (Knowledge Management) perspective

From factor analysis under varimax rotation, five factors have been extracted under learning and growth perspective.

[Table 3]

Factor	Factor Interpretation (% variance explained	Loading	Variables included in the factor
F₁	*Training and job security* (17.237%)	0.842	Mistakes, failures are allowed
		0.609	Knowledge is shared through various forms
		0 -.694	Users' friendly Communication system.
		0 -629	Management Information Systems (MIS)
F₂	*Train ing hour* (16.146%)	0 .941	Training hour per employees
		0.868	Knowledge sharing is facilitated through various forms.
		0.570	Frequency of training and development programs.
F₃	*Forms of knowledge shared* (15.776%)	0 .903	Employees turnover
		0.896	Knowledge sharing is facilitated through various forms
F₄	*Core competance* (15.776%)	0 .903	Knowledge and learning as a core competance
		0.848	Suggestion from employees'
F₅	*Job secuirity* (15.776%)	0 .758	Job secuirity.
		0. 744	Collective learning efforts for core competence

In all, the five factors explained 83.386 percent of the total variance of the learning and growth (Knowledge Management) perspective. The factor "Information readily avaiable" was eliminated (.926) because it included only one items with factor loading of 0.4 or above (Nunally, 1978)

Internal busniness Process perspective

From factor analysis under varimax rotation, two factors have been extracted under internal business process perspective. [Table 6 and Table 7]

Factor	Factor Interpretation (% variance explained	Loading	Variables included in the factor
F₁	*New ideas for product*	0 .834	Implementation of gathered knowledge
	(36.886%)	0 .784	Active programe for generating new ideas
F₂	*Zero- defects policies*	0.820	Percentage of defects free units
	(27.777%)	0 .620	On time delivery

In all, the two factors explained 64.663 % percent of the total variance of the Internal business perspective.

Customer satisfaction perspective

From factor analysis under varimax rotation, two factors have been extracted under customer satisfaction perspective.
[Table 5]

Factor	Factor Interpretation (% variance explained	Loading	Variables included in the factor
F₁	*Customer oriented* return policy (38.599%)	0.767	Satisfactory product return policy
		0 .730	Customer retention
		0.697	Increasing of new customer
		0.568	Customer Survey.
F₂	*Customer survey* (25.110 %)	0.901	Improved product and service from improved buisness process
		0 .498	Customer Survey.

In all, the two factors explained   63.709 % percent of the total variance of the customer satisfaction perspective

Financial perspective

From factor analysis under varimax rotation, two factors have been extracted under financial perspective. [Table 6]

Factor	Factor Interpretation (% variance explained	Loading	Variables included in the factor
F_1	ROA	0.817	Perecentage of ROA
	(30.785%)	0 .727	Increased revenue
F_2	Net Income	0.793	Gross Profit Perecentage
	(29.531%)	0 .734	Net Profit Percentage

In all, the two factors explained 60.315% percent of the total variance of the financial perspective.

Revised model of Balanced Scorecard:
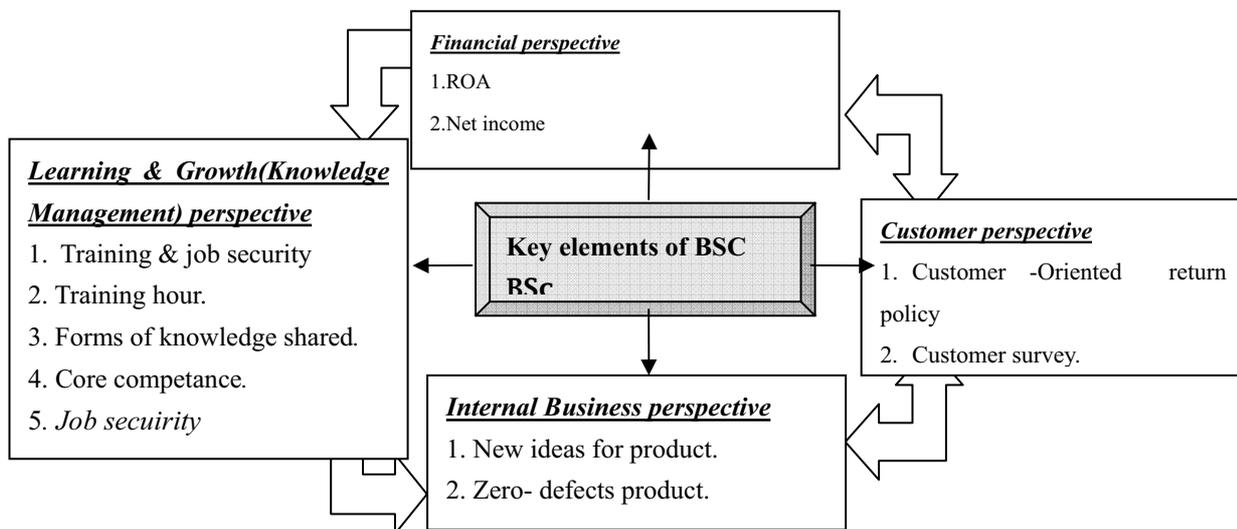
Sources: Author's own compilation after using statistical tool.

This revised model of Balanced Scorecard outlines the key factors of each of the four perspectives. This model has been developed based on the basic model of Balanced Scorecard (given earlier). Here, the elements of the basic model have been lessened down by use of *factor analysis.* The thirteen   variables of Learning and growth perspective have been factored and the five key variables are identified after the analysis which are *Training and job security* , *Training hour , Form of knowledge shared, Core competence, Job security.* The revised   two variables of Internal business process include *new ideas for products,*   and   *Zero – defects product* which have been drawn from   four primary variables. The factor analysis has led to two major components of customer perspective; they are *Customer   oriented return policy* and *customer survey.* Lastly, the   four variables of financial perspective have been rotated through factor analysis and have resulted in two major variable which are *Net income and ROA.*

Some comments in the light of findings

Kaplan and Norton distinguish Financial, Internal, Customer, and Learning and Growth perspectives on organizational processes essential to an overall strategy. Looking at the original Kaplan and Norton implementation, Knowledge Management clearly fits within, if it does not define, the Learning and Growth aspect of their framework. If this is true, Knowledge Management outputs will impact on other processes. This is one reason why the significance in measuring knowledge management benefits or costs to other processes in organizations is an important area for extending the present Kaplan and Norton work (Firestone and Joesph, 1998).

In order to establish a BSC in a profit-oriented organization the first step is to devise a strategic blueprint for the organization for which the mission and activities of the organization should be strategically confederated. The strategic map should initiate with the aspect of learning and growth. From the detailed discussion of knowledge management (made at the inception of the paper), and from the empirical findings it can be summarized that it is a process which

involves transforming the raw data (collected from both internal and external sources) into information and then again transfiguring this information into knowledge by use of human intuition and experience. To transform the information into knowledge, other than human insight and maturity, organizational support and capability (like policy and strategy inclination, manpower maturation & human empowerment capability, technological & information capability) are also needed. There should be a knowledge culture that will ensure creation and exchange of knowledge. This ultimate knowledge management will lead to a proper learning and growth of an organization on the ground that through knowledge, employees will acquire the skills and formulate and implement new options timely, accurately and efficiently. Thus, they will be competent to reconstruct the business process when needed according to the contemporary need of the market. This modernistic organized set up of the internal business process will satisfy the customers at a greater extent as new options and conveniences will be serviceable to the customers. This customer satisfaction will lead to a superior financial accomplishment with an increased sale leading to an augmented contribution margin and thus a heightening profit. (Figure 4)

Insert Fugure 4 here

Conclusion and Recommendations and Limitation of the study.

The paper attempts to connect Learning and Growth under knowledge management approach with BSC in Multinational organization of Bangladesh and to establish the fact that the success of knowledge management can be measured by Balanced Scorecard. The findings address that management experts of MNC have the same opinion that learning and growth is the key to strategic success, the foundation for the future. Empirical data from our survey results document that learning and growing organization is one in which knowledge management activities are deployed and expanded with a view to leverage the creativity of all the people in the organization The result also evidenced that BSC, as a strategic performance measurement tool helps in strategic management by linking some strategically significant, relevant and interrelated measures or indicators with   organizational emphasis on knowledge and learning initiatives . In Figure 4, it has been revealed that how a proper and effective knowledge management process leads to cause and effect relationship of a BSC and produce the financial success of the organization. Thus it is inferred that whether appropriate knowledge management is done in the organization or not can be revealed through the indicators of BSC. Based on our findings following recommendations are drawn.

(1) The firm under study necessitates concentrating not only to rise in Net Income from the previous year but also rise in some other financial measures.

(2) Employees are to be given much flexibility to suggest in any types of problem solving provided they are knowledgeable in their own area.

(3) Continuous efforts are to be taken to upgrade customer relationship management through which organizational growth level will be exposed to the stakeholders group.

(4) Organization should be alert and should take required measure such as creating a healthy atmosphere for working, building solid place for showing the level of individual creativity, performance based bonus system and other promotional systems to stop employees' turnover which are indispensable for organization's smooth functioning.

(5) Regular in house and out door trainings and development programs has to be arranged to ensure the real knowledge flow and to update knowledge throughout the every segment of the organization.

(6) Users- friendly Information and communication system are to be used in order to amplify knowledge in every segment of the organization.

(7) Proper care must be taken to update Management Information System (MIS) which is believed as a solid centre for knowledge gathering, knowledge sharing, and knowledge exchange.

(8) Friendly learning and growth environment are to be formed where employees' will learn with no panic and not in a demoralized manner.

(9) For picking up the level of customer satisfaction regular customer survey must be conducted so that their perception about the product, their complaint can be heard and some suggestion can be sought which would ultimately be incorporated in complying companies' policy "customer care".

(10) Active program can necessarily be on track by the organization for continuous development of new idea derived from knowledge and growth which can easily be used for new product introduction, improving process, and services.

We believe that our findings are important for several reasons. The first reason is that we used the BSC framework as a general structure model with a link to knowledge management to establish the linkage of knowledge management parameters with financial performance. Our conclusion supports the lead- lag relationship evidenced from our empirical study. Thus if a company actually starts learning and growth initiative through knowledge management approach, if the company actually applies a BSC model successfully, more systematically monitor it, assess its contribution to

performance and apply those measures properly, it will better suit with its profile. The second reason is that the firm under the study is a multinational organization and if an ultimate financial success of the organization is a result of the interrelated perspectives initiated with a good knowledge management practice and then leading to other perspectives of the BSC, it can be said that proper knowledge management practice is made when the indicators of BSC show satisfactory results. Thirdly ,managers can track measures as they work toward their objectives, and measurement metrics aid in showing how to build internal capacity, such as human capital, knowledge, and a knowledge culture. Besides a metrics frame work keeps measures from being ad hoc, providing a reference point for Knowledge management measurement after its implementation.

Nonetheless, the study itself is not free from certain shortcomings. The findings of the study must be interpreted with cautions as we applied knowledge management practices with linkage to BSC model only to one MNC. So generalization of results mentioned in the paper in other situation such as service concern or local manufacturing industries must be done carefully. Future research agenda can be set up to see the impact of knowledge management on those industries. A second limitation of this study is small sample size. Last of all, another lack of the current study is that the survey methodology basically measures belief   rather than actions.

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Table 1. Method 2 (covariance matrix) will be used for this analysis ******

R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

		Mean	Std Dev	Cases
1.	SUGGES_	3.2931	1.4019	58.0
2.	TRAING	2.7759	1.0267	58.0
3.	TURNOVER	2.6724	1.0494	58.0
4.	HOURS	2.4138	0.7501	58.0
5.	SECURITY	2.9138	1.1283	58.0
6.	COMPETEN	3.8276	0.9936	58.0
7.	INFORMAL	3.8621	0.6609	58.0
8.	INTERNET	3.7069	0.9913	58.0
9.	MISTAKE	3.0517	0 .9629	58.0
10.	NECE	3.3966	1.1689	58.0
11.	COLLECTI	2.7241	1.1207	58.0
12.	USERS	2.8793	1.0609	58.0
13.	MIS	3.1897	1.1766	58.0
14.	PRODUCT	3.2759	1.1207	58.0
15.	ACTIVE	3.1034	1.0872	58.0
16.	PROPER	3.5862	0.9918	58.0
17.	DEFECT	3.6724	1.0155	58.0
18.	PROCESS	3.4483	1.2019	58.0
19.	C.SATIS	3.3103	1.4413	58.0
20.	P.RTN	3.6724	1.0824	58.0
21.	C.RETENT	3.9138	0.8010	58.0
22.	NEW.CU	3.7069	1.1240	58.0
23.	REVENUES	3.8621	1.0336	58.0
24.	GM	3.5862	1.1703	58.0
25.	NP	4.2069	0 .8738	58.0
26.	ROA	4.0690	0 .9887	58.0

N of Cases = 58.0

				No of
Statistics for	Mean	Variance	Std Dev	Variables
Scale	88.1207	71.7922	8.4730	26
Item Means	Mean	Minimum	Maximum	Range	Max/Min

R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

Reliability Coefficients   26 items

Alpha =   .6104   Standardized item alpha =   .6132

Table 2. One-Sample t Test of Learning and growth, Internal Business Process, Customer satisfaction and financial perspective

Learning and growth perspective		Test Value = 03				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Suggestion from employees are encouraged by the top management	1.773	59	.081	.32	-4.08E-02	.67
Organizations conduct s frequent training and development program for employees	-1.516	59	.135	-.20	-.46	6.40E-02
Employee turnover is low	-2.337	59	.023	-.32	-.59	-4.56E-02
Number of hours spent for training per employee is high	-5.543	59	.000	-.55	-.75	-.35
Job security is ensured	-.462	59	.646	-6.67E-02	-.36	.22
Knowledge and learning competences are part of every employees competence profile	6.606	59	.000	.83	.58	1.09
organizational Knowledge is shared through informal contacts, Internal Lectures, conferences, problem solving and project review meetings, dialogue sessions, memos etc	10.271	59	.000	.88	.71	1.06
Knowledge sharing is facilitated through internet, intranet, library, comfortable meeting rooms, auditorium computerized archive and documentation system etc	5.742	59	.000	.73	.48	.99
Making mistakes are allowed; Failures are tolerated and not penalized. People learn from each other's mistakes, and	.409	59	.684	5.00E-02	-.19	.29

errors are openly discussed.						
The necessary knowledge for important decisions is usually readily available and easily accessible	2.941	59	.005	.45	.14	.76
There is continuous collective learning to develop the core competences of the organization	-1.875	57	.066	-.28	-.57	1.88E-02
Users friendly communication and information systems are used to spread knowledge among all employees	-.608	59	.546	-8.33E-02	-.36	.19
Management information system(MIS) are integrated and continually updated	1.440	59	.155	.22	-8.45E-02	.52
Internal Business Process Gathered Knowledge is constantly being implemented and incorporated into new products, services and processes	2.255	59	.028	.33	3.76E-02	.63
There is an active program for developing ideas. Based on this new knowledge is continually generated and used in the improvement of business process	1.150	59	.255	.17	-.12	.46
On time deliveries are high in all the deliveries	4.867	59	.000	.63	.37	.89
Percentages of defects free units are high of completed units	5.407	59	.000	.72	.45	.98
Improved business process acquiring from learning lead to improved products and service	3.119	59	.003	.48	.17	.79
Customer Satisfaction perspective Customer satisfaction is measured by survey results.	1.800	59	.077	.33	-3.71E-02	.70
Product return policy is satisfactory to customers	5.028	59	.000	.70	.42	.98
Percentage of customer retention has risen from last period.	9.040	59	.000	.93	.73	1.14
Number of new customers has increased from last period	5.019	59	.000	.72	.43	1.00
Financial Perspective Satisfied and loyal customers lead to increased revenues.	6.665	59	.000	.88	.62	1.15

Gross margin percentage has increased from the last period.	4.097	59	.000	.62	.32	.92
Net Income percentage has increased from the last period.	10.813	59	.000	1.20	.98	1.42
ROA percentage has increased from the last period.	8.367	58	.000	1.07	.81	1.32

Table 3. Factor Analysis for Knowledge Management

Total Variance Explained   under Learning and Growth (Knowledge Management)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.090	23.771	23.771	3.090	23.771	23.771	2.241	17.237	17.237
2	2.042	15.709	39.481	2.042	15.709	39.481	2.099	16.146	33.383
3	1.791	13.776	53.257	1.791	13.776	53.257	2.051	15.776	49.159
4	1.635	12.575	65.832	1.635	12.575	65.832	1.832	14.089	63.248
5	1.240	9.535	75.367	1.240	9.535	75.367	1.428	10.982	74.230
6	1.042	8.019	83.386	1.042	8.019	83.386	1.190	9.156	83.386
7	.831	6.392	89.778						
8	.462	3.555	93.333						
9	.391	3.011	96.343						
10	.196	1.510	97.853						
11	.152	1.168	99.021						
12	.104	.800	99.821						
13	2.322E-02	.179	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component					
	1	2	3	4	5	6
Suggestion from employees are encouraged by the top management	.123	.166	.288	.848	-.187	.167
Organizations conduct s frequent training and development program for employees	.256	8.800E-02	.896	-7.452E-02	.102	.100
Employee turnover is low	-8.631E-02	2.253E-02	.903	.284	2.394E-03	-5.121E-02
Number of hours spent for training per employee is high	8.774E-02	.941	.241	.124	-5.046E-02	5.871E-03
Job security is ensured	.280	-8.501E-02	.334	-.296	.758	-.210
Knowledge and learning competences are part of every employees competence profile	8.115E-02	-.123	-3.349E-02	.903	.122	-.115
organizational Knowledge is shared through informal contacts, Internal Lectures, conferences, problem solving and project review meetings, dialogue sessions, memos etc	.609	.570	.250	.109	.295	-8.511E-02
Knowledge sharing is facilitated through internet, intranet, library, comfortable meeting rooms, auditorium computerized archive and documentation system etc	-.212	.868	-.194	-.166	-4.932E-02	-.140
Making mistakes are allowed; Failures are tolerated and not penalized. People learn from each other's mistakes, and errors are openly discussed.	.842	.129	-.136	7.521E-03	.200	.258
The necessary knowledge for important decisions is usually readily available and easily accessible	-5.449E-02	-.133	5.021E-02	1.558E-02	3.445E-02	.926
there is continuous collective learning to develop the core competences of the organization	-.235	2.165E-03	-6.230E-02	.131	.744	.173
Users friendly communication and information systems are used to spread knowledge among all employees	-.694	.155	-.207	-3.354E-02	.260	.137
Management information system(MIS) are integrated and continually updated	-.629	.133	-.107	-.223	.199	.303

Extraction Method: Principal Component Analysis.   Rotation Method: Varimax with Kaiser Normalization.

a   Rotation converged in 17 iterations.

Table 4. Factor Analysis for Internal Business Process

Total Variance Explained under Internal Business process

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.554	38.841	38.841	1.554	38.841	38.841	1.475	36.886	36.886
2	1.033	25.822	64.663	1.033	25.822	64.663	1.111	27.777	64.663
3	.911	22.779	87.442						
4	.502	12.558	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component	
	1	2
Gathered Knowledge is constantly being implemented and incorporated into new products, services and processes	.784	-.112
There is an active program for developing ideas. Based on this new knowledge is continually generated and used in the improvement of business process	.834	.206
Percentages of defects free units are high of completed units	-.159	.820
On time deliveries are high in all the deliveries	.376	.620

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 3 iterations.

Table 5. Factor Analysis for customer satisfaction Perspective

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.054	41.090	41.090	2.054	41.090	41.090	1.930	38.599	38.599
2	1.131	22.619	63.709	1.131	22.619	63.709	1.255	25.110	63.709
3	.681	13.612	77.321						
4	.598	11.964	89.285						
5	.536	10.715	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component	
	1	2
Improved business process acquiring from learning lead to improved products and service	7.081E-03	.901
Customer satisfaction is measured by survey results.	.568	.491
Product return policy is satisfactory to customers	.767	-.324
Percentage of customer retention has risen from last period.	.730	9.846E-02
Number of new customers has increased from last period	.697	.297

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 3 iterations.

Table 6. Factor Analysis for financial perspective

Total Variance Explained under financial perspective.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.249	31.223	31.223	1.249	31.223	31.223	1.231	30.785	30.785
2	1.164	29.093	60.315	1.164	29.093	60.315	1.181	29.531	60.315
3	.938	23.441	83.756						
4	.650	16.244	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix

	Component	
	1	2
Satisfied and loyal customers lead to increased revenues.	.727	-6.911E-02
Gross margin percentage has increased from the last period.	-.146	.734
Net Income percentage has increased from the last period.	.114	.798
ROA percentage has increased from the last period.	.817	3.935E-02

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a   Rotation converged in 3 iterations.
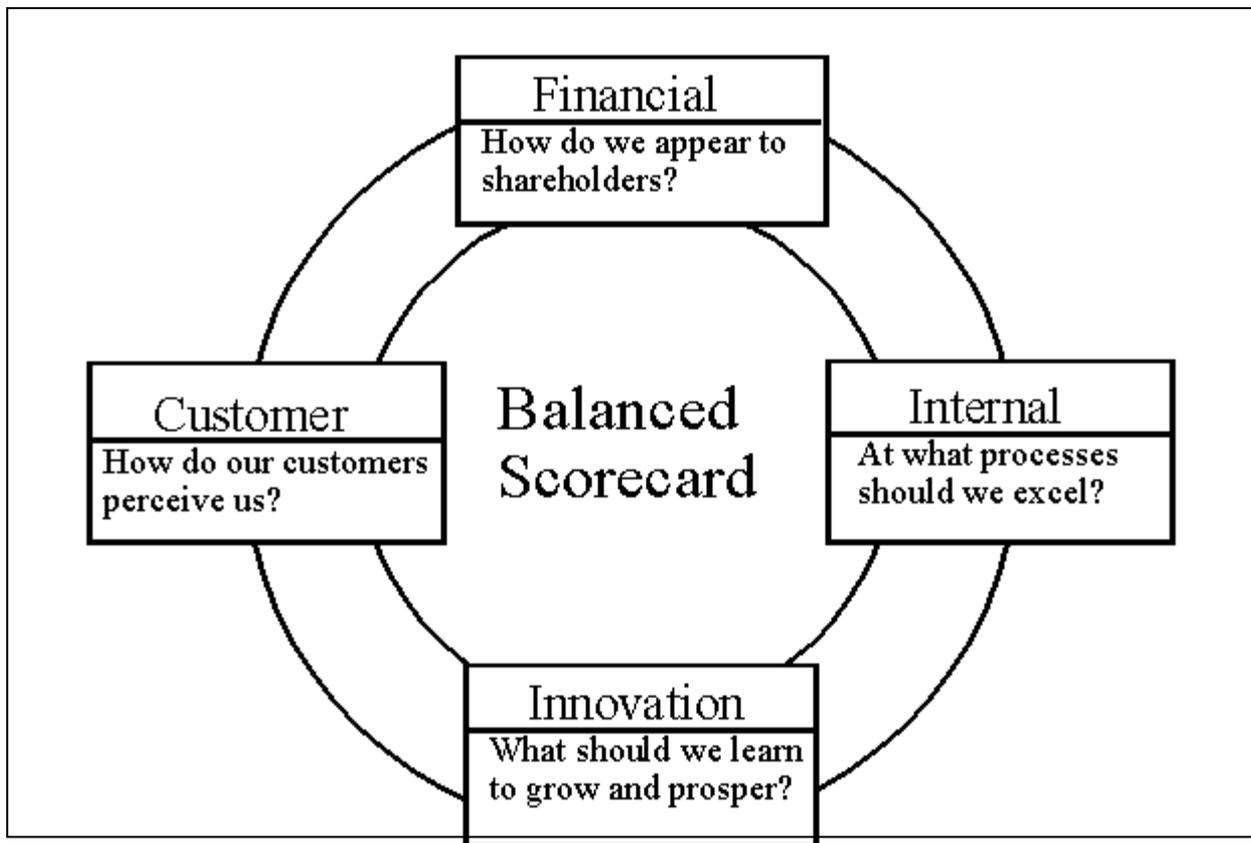
Figure 1. *The Balance scorecard. Harvard Business School Press: 9*
Sources: Kaplan and Norton (1996).

Figure 2. Cause and Effect Relationship

Source: Kaplan, R.S. and Norton. D.P. (1996). The Balanced Scorecard Translating Strategy into Action.
Harvard Business School Press, Boston.

Financial Perspectives

1.   Gross Profit (G/P) ratio, Net profit (N/P) ratio, Earnings per share (EPS), Return on total assets (ROA), Return on common stockholder's equity (ROE), Market value per share (MPS).

Internal   Business   Process Perspectives

1.On time delivery.Percentage of defect free units, Through put time, Manufacturing cycle efficiency, Set up time ,Frequency of new product development, Response to customer calls, After- sales service cost, Time taken to settlle customer complaint, Percentage of sales from new products, Percentage of defects free units, Amount of WIP, Quality cost,

Perspectives of BSc

Customer Perspectives

1. Conducting survey Number of customer complaints, Market share, Product return policy, Retention of customers, Ability to Attract customers, Product quality

Learning   and   Growth   (Knowledge Management)Perspectives

1. Considering employee suggestions

2. OrganizingFrequent training and development program

3. Percentage of employee turnover

4. Job security

5. Knowledge and learning as a core competence

6. A number of means are applied for sharing Knowledge within the organization

7. A number of means are applied for facilitating Knowledge within the organization.

8. Availability of necessary knowledge for inportant decesion.

9. User friendly communication for spreading knowledge

10. There is a continuous collective learning effort for develoiping core competence withion the organization.

11. MIS are integrated and continuously upgrated.

Figure 3. Model Development

Balanced Scorecard Perspectives	Strategic Management activities	Measures of Strategic Management activities

| **Financial Results** | **Budget & Cost Management** | **NI, NOI, ROI, EPS, EVA.** |

| Customer Satisfaction | **Customer Relationship Management** | **Customer satisfaction survey, New customer retention, Market share. Customer profitibility** |

| Business Process | **Business Process Improvement** | **Manufacturing efficiency, After sales service, new product design and development, Product quality.** |

| Learning and Inovation | Learning & Growth | **Intellectual abilities of employees, Information systems, Training and development.** |

| | Knowledge Management | |

Figure 4. Linking between Knowledge Management and Organizational learning and growth activities through BSC.

Sources: Garrison H. Ray, Noreen W. Eric. 2000. Management Accounting, Mc Graw- Hills .NY

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