INTERNATIONAL

BUSINESS

RESEARCH

CCSE

Canadian Center of Science and Education®

Editorial Board

Contents

Contents

The Role and Perceptions of Middle Managers and Their Influence on Business Performance: The Case of Sri Lanka

Sriya Kumarasinghe (Corresponding author)

Department of Accountancy & Business Law, University of Otago

PO Box 56, Dunedin 9054, New Zealand

Tel: 64-3-479-8120   E-mail: sriya.kumarasinghe@otago.ac.nz

Yasuo Hoshino

Graduate School of Accounting, Aichi University & University of Tsukuba

2-10-31, Tsutsui, Higashi-ku, Nagoya 461-8641, Japan

E-mail: hoshino@aichi-u.ac.jp

Abstract

This paper investigates the role and perceptions of middle managers and how they influence business performance in Sri Lankan companies. The study presented here is based on a questionnaire survey of 121 middle managers regarding issues of communication, group decision making, and organizational leadership. Quantitative analysis of the responses suggests that organizations with collectivistic leaders achieve better performance. As a result, it is argued that collectivism, which includes middle management, can positively contribute to Sri Lanka's business development and economic recovery.

Keywords: Communication, Group decision making, Performance, Collectivism, Individualism, Leadership, Middle managers, Sri Lanka

1. Introduction

Business organizations face considerable challenges in the face of rapid technological development and global economic change. In Sri Lanka, these challenges have been heightened by the 30 year long civil war that ended in 2009 and the tsunami disaster of 2004. As an emerging economy, a key issue facing the country is to develop business models that can effectively respond to these challenges. Innovative, efficient and sustainable utilization of resources are intrinsic to long term planning and strategy. To this end, top management, middle management and employees need to work as an integrated team. This paper argues that the role of the middle managers is vital in this regard, since they are the link between senior management and employees, and also front line communicators who can readily complement leadership.

Research on organizational behaviour traditionally casts the CEO as the most influential change agent in the business environment (Chung & Lo, 2007; Beugre et al., 2006; Caldwell, 2003; Grant & Cibin, 1996). However, the view that management and leadership are synonymous has been criticized, since they perform two different roles. (Caldwell, 2003; Zaleznik, 1990). Leadership extends beyond the knowledge of management processes. Managers tend to focus on processes while leaders focus on imaginative ideas. Leaders not only dream up ideas, but stimulate and drive other people to work hard and create reality out of ideas (Zaleznik, 1990). Research on the role of middle managers is limited, despite their function in linking top management and employees. In some cases, interviews with employees have revealed that their CEOs meant nothing to them, because it is the middle managers who are the heroes in their eyes (Brubakk & Wilkinson, 1996). The middle managers proximity to the employees and opportunity to identify conflicts and problems, as well as decoding corporate messages for employees play a key role in managing change and contributing to the organization's desired goals. However, when the necessary power and tasks are removed from middle managers or when they perceive the top leadership negatively, there is some evidence to suggest that middle managers become reluctant managers (Wu et al., 2007). Building team work, knowledge and consciousness of organizational goals depends on how middle managers perceive their leaders and their strategic visions.

The roles played by middle and lower levels of management tend to be neglected in the literature on corporate culture. But how do the middle managers perceive their leaders? Does this perception make any difference to the bottom-line? Answers to these questions should be of interest to the management of any organization. This type of research is crucial for multinational companies in developing countries due to their cultural diversity of external and internal environment, and also due to their ability to attract foreign investors. With increasing international economic activities and globalization of markets, questions are raised about the effective application of western management and leadership techniques in emerging markets (Walumbwa & Lawler, 2003). When western multinational companies (MNCs) move towards Asia seeking competitive advantage, is it possible for their expatriates to carry their familiar and well-established management practices with them to? What are the challenges to be met as a consequence? As an emerging economy, the case of Sri Lanka is worth consideration.

The economy of Sri Lanka has gone through a massive reformation since the liberalization of trade in 1977. Sri Lanka has now classified (together with Chile, Argentina, and Uruguay) as one of only four countries outside East Asia that has achieved a clear policy shift from import substitution-based industrialization to export-oriented industrialization (Athukorala & Rajapatirana, 2000). To respond to this change, there has been substantial foreign investment in Sri Lanka and many new business ventures have appeared in the domestic business arena. The share of foreign direct investments in local industries has increased in dramatically. In 1977, the share of foreign firms in the export manufacturing sector was 24%. By the mid 90's, it managed to increase the share up to 80% (Athukorala & Rajapatirana, 2000). Today Sri Lanka is gaining high popularity from the developed world for its skilled but cheap labour market and also for its attractive tax policies.

Apart from the world-wide attention Sri Lanka received at the time of the tsunami disaster in December 2004, the country remains little explored in the scholarly world of management. While some research has been published in this context (Kumarasinghe & Hoshino, 2003; Chandrakumara & Sparrow, 2004; Mamman et al., 2006; Akuratiyagamage, 2007), and to the best of our knowledge, there is little or no research that has focussed on middle-management's perceptions of leadership, or on management practices and organizational performance in Sri Lanka. It is this gap in the literature that this paper seeks to fill.

The work presented here is intended to assist top management and CEOs to understand the importance of having middle managers perceive them positively, as well as their influence on management processes, which in turn have a direct effect on the overall performance of the company. It can also contribute to company performance by improving quality and innovation,.

In what follows, we will discuss (i) previous research about middle managers' perceptions on leadership styles, communication and decision making, (ii) the methods used to investigate these issues and (iii) the results of the questionnaire survey that was sent to a sample of middle managers in Sri Lanka will be analysed and discussed. The limitations of the current study and potential future research are presented by way of conclusion.

2. Literature Review

In this section, the concept of leadership and the evolution of different leadership styles are briefly discussed, and the literature on leadership in cross-cultural context is reviewed. A research framework is developed and hypotheses are derived based on this review.

2.1 Leadership

Research on leadership covers the past several decades (Schmid, 2006; Oshagbemi & Ocholi, 2006; Buus & Saslow, 2005; Rodsutti & Swierczek, 2002). Leadership is defined in many ways. It is variously viewed as a focus of group processes, personality and its effects, the art of inducing compliance, the exercise of influence, an act or behaviour, a form of persuasion, power relation, an instrument of goal achievement, an emerging effect of interaction, a differentiated role, the initiation of structure, or as a combination of elements (Bass, 1990).

Weber identified three types of leadership; rational-legal, traditional, and charismatic; based on the nature of power and authority they enjoy (Weber, 1947). According to Keith Davis, it was the ability to persuade others to seek defined objectives enthusiastically; the human factor that binds a group together and motivates it toward goals; and the ultimate act that brings to success all the potential that is in an organization and its people (Davis, 1977).

White and Lippitt (1960) focus on authoritarian, democratic, and laissez-faire styles of leadership to describe the general approach used by the leaders in human situations. Bass describes transactional and transformational styled of leadership. In transactional leadership style, the leader influences followers through desired rewards, and under transformational leaders, the followers are transformed through intellectual stimulation and higher

level of motivation (Bass, 1985). Yang et al (2010) investigate the relationship between middle managers' transformational leaders and the performance of front line employees and confirm the existence of influence of middle managers on front line employees, bypassing their immediate supervisors, and also the existence of the moderating effect of the supervisors' power distance value. Hancer *et al* (2009) analyze the relationship between middle-level managers' personal risk-taking propensities and corporate entrepreneurship among 106 middle-level hotel managers in Turkey. Since none of the risk factors which included profit risk, emotion risk, managerial risk, or venue risk influenced corporate entrepreneurship, they suggest that middle managers must have the support of top management for risk taking along with a reasonable tolerance for failure.

The research carried out by Wu et al. (2007) was an attempt to identify the influence of the immediate supervisor's transformational leadership on employees' cynical attitudes towards organizational changes in the Chinese context. They concluded that transformational leadership was negatively related to employee cynicism about organizational change and that this relationship was mediated by employees' informational and interpersonal justice perceptions. The relationship was enhanced when employees perceived their work group as cohesive.

2.2 Collectivism and Individualism

The influence of national culture in organizational settings has been brought to light by Hofstede (1980) in his work on national cultures, and it has broadened the arena of organizational research substantially (Ramamoorthy et al. 2007). Even though his research was heavily criticised in the later years (Bakersville, 2003), his work has been strengthened by the global study of House et al., (2004) and is still used extensively.

According to Hofstede's research, some less individualistic countries are less developed in terms of their economic growth. Those societies respect tradition and collective thinking. One of the key characteristic of individualistic and collectivistic values is the emphasis placed on the individual goals versus collective goals. Individualists put more weight on self-interest, personal goals and personal achievements. Collectivists place group goals ahead of the individual goals. Collectivistic societies are characterized with large power distance, inter-dependence on the group members, extended family relations, high communication and group decision making (Hofstede, 1991). If we match this conceptualization with the traditional values in Sri Lanka, Sri Lanka can be viewed as a member of the collectivistic group of countries.

Walumbwa et al. (2003) have investigated the moderating impact of collectivism on the relationship between transformational leadership behaviour, collectivism, work-related attitudes, and perceptions of organizational withdrawal behaviour in China, India, and Kenya. Their research reveals a moderating effect of collectivism on the relationship between transformational leadership and work-related outcomes, such as facets of job satisfaction, organizational commitment, and perceptions of organizational withdrawal behaviours. Contrary to their expectations, transformational leadership explained a greater proportion of variance in all outcome measures under low, medium and high collectivism. The authors believe that transformational leaders pay special attention to each individual's abilities, aspirations and needs to enhance their confidence in facing challenges in their work. Ramamoorthy et.al. (2007) report that Indian employees were slightly but significantly less individualistic than Irish employees on supremacy of individual goals and on solitary work preferences, but on competitiveness, Indian employees were more individualistic than Irish workers (Ramamoorthy et.al. 2007).

Freeman's research on individualism and collectivism in Sri Lanka concludes by saying that some conditions of individualism and collectivism are likely to differ across different social groups categorized on their location of residence, socioeconomic status, educational level, and occupational status (Freeman, 1997). It forecasts that with the continued expansion of urban industrial development and rising incomes, there will be a shift towards individualism in Sri Lanka. This work supports a previous research finding in which individualism is seen as a behavioural characteristic in middle and higher executive levels (Nanayakkara, 1988). The contrasting results reported from these environments clearly requires empirical research.

2.3 Middle Managers

Middle managers have traditionally been seen as suppliers of information and the consumers of decisions made by the top-level managers, in their business organizations (Thompson, 1967). The object of the communication system is coordination of all aspects of the organization (Barnard, 1938). Instead of top-down or bottom-up models, some researchers have paid attention to the "middle-up-down" approach emphasizing the 'knowledge creation' by the middle managers. Middle managers are synonymous with "backwardness", "stagnation" and "resistance to change" but they are the key to continuous innovation (Nonaka & Takeuchi, 1995). In the process of knowledge creation, employees, especially the middle managers, play an important role building up a new

organization structure and transforming knowledge between the traditional hierarchical system and project teams (Nonaka & Takeuchi, 1997).

Middle managers are in a strong position to introduce organizational change. Foreseeing turbulent times ahead, Peter Drucker said, the very term 'middle management' is becoming meaningless in the context of what he called as the 'double-headed monster' (Drucker, 1980). Drucker emphasizes the important role of middle managers in creating and maintaining effective management systems. Upward influence is commonly associated with consensus decisions, commitment to goals, and innovation (Schilit, 1987). This view is confirmed by many scholars including Nonaka & Takeuchi (1995). During the last decade Japanese companies have undergone major changes. Many of them have downsized and middle managers have been burdened with extra responsibilities and the stress of uncertainty concerning their jobs (Iida & Morris, 2008) Shedding a new light on the symptoms of organizational problems at middle management level in Japanese companies, Karube et al (2009) postulated that extra organizational load is prevalent in deteriorating organizations. They further claim that rigid conformity and excessive emphasis on harmony may make it difficult for middle managers to realize new strategic initiatives.

2.4 Communication

Communication and inter-personal relationships are closely related to organizational factors which lead to job satisfaction and better performance (Jo & Shim, 2005), which eventually leads to better overall performance in organizations. Therefore effective communication is vital at every level to ensure smooth running of the organization (Brownell, 1991). As Jo and Shim (2005) demonstrate, supportive oral communication was positively related to the perceptions of the individuals on supportiveness and friendliness of the management. They found that managers who communicate well and attentively to their subordinates achieve better results in situations that involve nurturing and maintaining trustworthy relationships. Neelankavil et al. (2000) conducted cross-cultural comparative research on the perceptions of middle-level managers and performance in China, India, Philippines and United States. They found culture has a significant impact on managerial practices particularly between China and the United States. Further they found significant differences among managers of the three Asian countries as compared with US. Their findings show that while Chinese and American middle managers represented two extreme leadership styles of individualism and collectivism. In communication and decision making, Filipino and Indian managers were found much similar to US than Chinese counterparts. Addressing the issue of corporate social responsibility (CSR) in small- and medium-sized enterprises (SMEs), Nielsen and Thomsen (2009) conducted a case study interviewing three middle managers in two firms in Denmark. They concluded that in order to develop corporate identity and image of the firms as good corporate citizens, SMEs need to strengthen both direct and indirect communication.

Highlighting the importance of middle managers, Robbins (1983) points out tall organizations reduce the power of top management, because middle managers gain control over the information. Since middle managers know more about what is going on at the operational level, they also can filter out information before passing it up to the top management. Westley (1990) emphasizes the dissatisfaction among middle managers who often perceive as they are excluded from the strategic process. He concludes that the top management should pay attention to the conditions wherein middle managers are likely to experience exclusion, inclusion, and sustained energy on strategic issues. Middle managers feel exclusion when there is resisted conversation, lack of formal or informal mechanisms to allow middle managers to communicate cross-functionally, or when general strategic discussions are limited to top status group. Consequently, top management should address the 'exclusion and inclusion' issues strategically and tactfully to convert the relationships with middle managers into positive relationships in order to gain better long-term results.

2.5 Decision Making

Research on upward influence in decision making has received little attention (Schilit, 1987). The results of research by Schilit confirms that middle level managers' influence on upward strategic decisions, both high-risk and low-risk decisions, led to greater incidents of success than failure. Those decisions were however more prevalent in private organizations than public organizations. Middle level managers who had longer work experience with their senior managers had also been seen as the key influencers in strategic decision making by creating and building mutual trust.

The following three hypotheses are derived from the research presented above.

Hypothesis 1. Communication and group decision making has a significant influence on organizational performance.

Hypothesis 2. Communication systems are more effective in business organizations where middle managers perceive their leaders as more collectivistic, and have significant positive influence on performance.

Hypothesis 3. In business organizations where middle managers perceive their leaders as more collectivistic, with greater emphasis on group decision making, this will have significant positive influence on performance.

3. Methods

3.1 Survey method

A structured questionnaire was the main instrument used in this study. In the view of many experienced researchers, structured questions produce more relevant and comparable responses than open-end ones (Rosenthal & Rosnow, 1991). The questions were developed using the Likert Model of Item Analysis, and used only four scales in order to avoid indifferent answers, or selecting the middle scale for convenience. The four scales were 'strongly agree, agree, disagree, and strongly disagree'. The questionnaire was reviewed by professionals and practitioners and pre-tested by administering it to 25 managers who were the participants of an executive program in a leading university in Sri Lanka.

3.2 Sample

The sample was randomly selected from businesses functioning in the Greater Colombo area. A total of 200 questionnaires were distributed with the permission of the chairman or the director of the companies. Questionnaires were handed out to companies to be completed by a manager under the CEO in each company. A cover letter with each questionnaire, promised all participants strict anonymity. Telephone calls were made to act as reminders and provide notification before collection. A 121 questionnaires were completed and returned constituting a response rate of 60.5 percent. Of these, 66 companies were registered on the Colombo Stock Exchange. Four companies in the sample were fully decentralized plants or profit centres of multi-business companies. Twenty-seven companies had not declared their company name or other contact details in the questionnaire. Therefore they were not in the company list.

Financial performance data were obtained from published annual reports; consequently the use of quantitative performance analysis was limited to the listed companies in the sample.

3.3 Organizational factors

Key variables were selected for the organizational attributes of leadership (Hater & Bass, 1988; Neelankavil et al., 2000; Xenikou & Simosi, 2006), communication (Robbins, 1983; Hater & Bass, 1988; Brownell, 1991; Neelankavil et al., 2000; Hofstede, 2001, Jo & Shim, 2005), and group decision making (Burns & Stalker, 1961; Keller et al., 1974; Hofstede, 1980; Robbins, 1983; Hater & Bass, 1988; Neelankavil et al., 2000). Both communication and group decision making have been identified as crucial factors in establishing healthier relationship between leaders and middle managers.

Variables for the analysis were derived by calculating average mean values of several variables under each attribute. To distinguish leadership style as collectivistic or individualistic, average mean value of three variables, superior's control over subordinate's work, superior's concern on subordinate's personal problems, and subordinate willingness to talk openly and frankly with the superior was used. The median value for the leadership was 2.66. The organizations which have above median value for leadership were categorised as collectivistic and below median values were considered as individualistic. The value used for communication was the average mean of three variables; speed of top bottom, bottom up, and horizontal communication (Cronbach Alpha = .564). Group decision making (GDM) was the average mean of five variables; GDM for corporate objectives, GDM for functional objectives, GDM for new technology and development, GDM for transfer and promotions, and GDM for reward system planning (Cronbach Alpha = .887).

3.4 Performance measures

Measuring performance is a controversial issue in management studies. Some researchers focus only on financial measures and some argue about the necessity of both qualitative and quantitative measures. Robson et al. (2006) reviewed the empirical studies on behavioural attributes and performance in international strategic alliances. They identified three distinct performance measurement approaches; multifaceted assessment, financial assessment and stability measurement. Among the 41 studies they reviewed, multivariate performance indicators were used in 32 studies. Multifaceted assessments are based upon managers' perceptual judgements in terms of self-rate performance, giving an overall viewpoint on satisfaction with performance or goal achievement. The method of multiple assessments stands over the single-facet performance measures which may not adequately capture the achievement of the objectives. Even though the balanced scorecard measuring system (Kaplan &

Norton, 1992; Adler & Theivananthampillai, 2006) is considered as a more successive extension of the multifaceted assessment, wide use of financial or economic performance measures such as return on equity (ROE) (Mak & Akhtar, 2003), return on assets (ROA), return on sales (ROS) (Goll & Sambharya, 1998), return on investment (ROI), sales growth rate (SGR), profit growth rate (PGR) (Kumarasinghe & Hoshino, 2003) are still commonly used.

The Japanese way of pursuing excellence is called KAIZEN, or a system of continuous improvement. Whereas western management rates innovation and dramatic breakthroughs or production techniques very highly, KAIZEN or continuing improvement system is undramatic and subtle by way of comparison (Imai, 1991). The KAIZEN system and Total Quality Control (TQC) have a very strong connection. TQC typically deals with areas such as quality assurance, cost control, collectivism and team work, meeting production and delivery schedules, safety, new product development, productivity improvement, and supplier management. The benefits of KAIZEN can thrive only under a top management that has genuine concern for the long-term health of the company (Imai, 1991). Paladino (2007) investigated the market orientation and resource based view of firms for innovation, new product success, financial performance, market share, and customer value. Findings showed that organizational learning was strongly associated with market orientation, which in turn impacts various performance outcomes. The resource based view also had a significant relationship with new product success. Paladino states that innovation had an indirect effect on customer value and financial performance.

Based of these quantitative and qualitative interpretations on performance, ROI, net profit growth, and average sales growth were used for this study as quantitative measures of performance (Marcoulides & Heck, 1993). As qualitative measures of performance, quality, service, innovation, new idea proposals, and employee satisfaction were used (Miles & Snow, 1978; Delery & Doty, 1996; Liouville & Bayad, 1998; Ahmed et al, 1998; Mak & Akhtar, 2003; Prajogo & Sohal, 2006; Paladino, 2007). The indicator of quality was the average mean of five items, product quality, waste control, quality of equipment and technology, quality of personnel, and quality of training and development (Cronbach Alpha = .714). Service included the average means of two variables, supplier and customer service (Cronbach Alpha = .582). Innovation consisted of the average means of three variables; creativity and innovativeness of products, processes, and marketing (Cronbach Alpha = .811). New idea proposal was the average mean of two variables; introduction of new products and frequent proposals of new methods and new ideas (Cronbach Alpha = .551).

The groups of variables in the constructs of communication, service and new idea proposals had lower alpha coefficients than the normally accepted level. Some researchers are rigid about this 'acceptable level' and some are cautious about the deletion of possible important information merely for the purpose of reaching the acceptable alpha level (Spiliotopoulou, 2009). Spiliotopoulou claims that low size of the coefficient alpha might not always suggest adequate reliability. Low level of alpha might be related to the limited number of items included in the test, or due to the limited width of the scale which may be the cause behind the low alpha coefficient in some of our variables. Schmitt states that satisfactory levels of alpha depend on test use and interpretation. Even relatively lower (e.g. .50) levels of criterion reliability do not seriously attenuate validity coefficients (Schmitt (1996). Therefore we decided to continue with low alpha for some of the variables in the analysis. The need for further improvement of the data set was noted. Employee satisfaction was measured by only one variable. The data were normally distributed (skewness was less than 0.4) with low or no correlation.

4. Results

Table 1 shows descriptive statistics of the behavioural factors and performance variables in the total sample of 121 business organizations.

Eighty one organizations were categorized as having collectivistic leadership and 26 organizations with an individualistic leadership approach. Among the 66 organizations, there were 41 companies with collectivistic leaders and 25 companies with individualistic leaders. Compared to the mean values in individualistic companies, collectivistic companies scored higher values in all behavioural and qualitative performance factors except in quantitative measures of the net profit growth and average sales growth.

The regression results in the tables from 3 to 8 show the influence of communication and group decision making on performance measures and also the differences among the two types of organizations in which middle managers perceive their leaders differently. The sample was tested against multicollinearity and the values were within the tolerance range.

With regards to the total sample of 121 companies, Table 2 shows that both attributes of faster three-way communication and group decision making made significant positive influence on quality, service, and innovation. Group decision making had a relatively lower but a significant and positive influence on new idea

proposals and employee satisfaction. When the model was applied separately for the companies with collectivistic and individualistic leaders, significant correlations were found in the collectivistic group. Within collectivism, group decision making was a significant factor for quality, service, innovation, and employee satisfaction. Communication had only a lower level of influence on innovation but no influence on other measures (Table 3). The organizations functioned under individualistic leadership, communication or group decision making were not good predictors of qualitative performance in those companies (Table 4).

When the regression model was run to see the nature of the relationship between behavioural factors and quantitative performance measures, the results were rather opposite. In the sample of 66 companies, in which the quantitative financial data was available, we could see communication as a significant factor but having a negative influence on ROI. Group decision making had a positive influence and the model was significant. Profit growth or sales growth did not show significant results (Table 5).

In the collectivistic group, the profit growth and ROI were positively and significantly influenced by group decision making. The model for ROI was significant (Table 6). Communication had a significant negative influence on ROI, and not significant with profit growth or sales growth. Under individualistic leadership, there was no significant result between quantitative performance factors and behavioural factors (Table 7).

5. Discussion

All the hypotheses were supported except for quantitative performance measures. As we hypothesized in H1, both communication and decision making showed a significant and positive influence on qualitative performance measures. In the case of quantitative measures, our prediction was partially supported. Group decision making showed significant and positive influence on ROI but communication had a negative influence. The results from the total sample suggested that more group decision making but less multi-directional communication were good predictors of company's ROI. In the group of companies with collectivistic leaders, much stronger results were derived (H2). In those organizations both communication and group decision making had strong influence on both qualitative and quantitative measures except between communication and quantitative measures. Under individualistic leadership condition (H3), there were no significant relationships between communication and/or group decision making, and qualitative or quantitative performance measures.

These results raise the need to explore why the sample organizations in Sri Lanka did not impact on quantitative measures such as profit, sales or ROI, while there was evidence of the existence of 'so-called' better management practices that could lead to financial success as described in western management concepts.

The results were consistent with the empirical research findings by Niles (1999). Niles showed that Australians who carry the western work ethics scored highest on outcomes of hard work and lowest on self reliance, while the Sri Lankans who represent Buddhist or eastern work ethics scored highest on self-reliance and lowest on outcomes. His study suggests that Sri Lankans endorse a work ethic defined as 'respect for, admiration of, and willingness to take part in hard work' more strongly than people from the western cultures. Niles also recognized Sri Lanka as a collectivistic country, and concludes by saying that most religions and most cultures seem to have a common concept of work ethic; defined as a commitment to hard work and to excellence. However, what does not seems to be universal is a direct relationship between hard work and success. There could be a religious influence which emphasizes individual responsibility. Niles says that Sri Lankans have the right ingredients for economic success, but motivation and the right attitudes are only one part of the factors leading to the economic development. The question that arises here is "What is the religious influence in the Buddhist culture of Sri Lanka which restricts business development and financial success?"

Research on the influence of religion in decision making (Fernando & Jackson, 2006) reveals that the religion plays a significant role in influencing the judgement, emotional and motivational qualities of Sri Lankan leaders' decision making. Ancient Sinhala texts of Theravada Buddhism explain how persons are expected to react when they read or listen to a recital of its narrative. Events of the past have had a direct and significant impact upon their present lives and future destiny. In the Buddhist society of Ceylon (now Sri Lanka) bhikkhus (monks) who preached the Buddhist way of living performed as teachers and advisors of the community (Rahula, 1966) and that practice remains the same even today. Organizations like Sarvodaya in Sri Lanka continuously apply Buddhist philosophy and show how positive results can be achieved by effective decision making in a collectivist environment.

Buddhist perspectives on employer-employee relationships are worth careful consideration. According to the *Sigalovada Sutta* which contains the Buddha's teachings on domestic and social duties, there are five ways in which a master should minister to his servants and work people: by assigning them work according to their strength; by supplying them with food and wages; by tending them in sickness; by sharing with them any profits;

and by granting leave and special allowances. Similarly, there are five ways in which employees ministered to by their master: they rise before him, they lie down to rest after him; they are content with what is given to them; they do their work well; and they carry about his praise and good fame (de Silva, 1974). The master described here is a person who has more collectivistic values, and the employee is a hard-working man. In the *Parabhava Sutta*, another part of the Buddha's teachings, the Buddha teaches that people who are rich lay people should support their elderly parents, but wealth alone should not be promoted. Such practices are likely to affect one's success in life. Wealth itself or the accumulation of wealth negatively perceived in Theravada Buddhism, which dominates Sri Lankan society. Theravada Buddhism differs from Mahayana Buddhism, which is commonly practiced in Japan, Korea, and China. Wealth sharing is a widely used traditional motto in Sri Lanka.

Collectivistic leadership promotes qualitative measures which may lead to more sustainable economic performance in the long-run through qualitative achievements. The Xenikou and Simosi (2006) suggest that a humanistic orientation places significant but negative direct impact on financial performance. Our findings are consistent with this conclusion.

Although there was no positive relationship between behavioural attributes and quantitative performance factors, it is worth noting that tax avoidance and lack of policy implementation towards efficiency are also common in developing economies like Sri Lanka.

6. Conclusion

The aim of the present study was to investigate whether middle managers' perceptions on their leaders are related to communication and decision making processes and influence performance. Organizational behavioural attributes were analysed against both qualitative and quantitative performance indicators.

Our findings show that in organizations in which middle managers perceive their leaders as collectivistic, group decision making and fast two-way communication were commonly in practice, and this contributed to high quality, better service, innovation, new idea proposals and employee satisfaction. Interestingly, under collectivistic leadership, communication or decision making did not influence economic performance. There may be an influence of religion for that result and it needs further investigations.

We suggest in conclusion that CEOs and managers of companies operating in Sri Lanka should consider cultural values and religious beliefs when setting economic goals for the organization. They should also allow for group decision making and remove barriers that impede fast and two-way communication.

Limitations of the research include the use of a single-respondent. Collinearity was not tested. Analysis of quantitative measures of performance was limited to those companies which have published their financial information, accounting for over half of the total sample. Future studies require wider sampling and comparative data drawn from other Asian countries.

Business models that have been applied to Sri Lanka to date are largely based on western ideologies. However, Sri Lanka is a unique environment with a unique history and cultural mix. This uniqueness and its impact on business development needs to carefully considered and needs to be part of a much larger research agenda. We look forward to contributing towards this agenda in the future.

Acknowledgement

References

Adler, R. W. & Theivananthampillai, P. (2006). Strategic Investment Proposals and the Balanced Scorecard: How to Ensure Consistency Between investments and Long Term Strategy. *Asia-Pacific Management Accounting Journal,* 1(1), 113-125.

Ahmed, N. U., Montagno, R. V. and Firenze, R. J. (1998). Organizational Performance and Environmental Consciousness: An Empirical Study, *Management Decision,* 36 (2), 57-62.

Akuratiyagamage, V. M. (2007). Management Development Practices; Empirical Evidence from Sri Lanka, *The International Journal of Human Resource Management,* 17 (9), 1606-1624.

Athukorala, P. & Rajapatirana, S. (2000). Liberalization and Industrial Transformation: lessons from the Sri Lankan Experience, *Economic Development and Cultural Change,* 48(3). 543-572.

Bakersville, R. F. (2003). Hofstede Never Studied Culture, *Accounting, Organizations and Society*, 28, 1-14.

Barnard, C. I., (1938). *The Functions of the Executive*, Cambridge: Harvard University Press.

Bass, B.M. (1990). *Bass & Stogdill's Handbook of Leadership: Theory, Research & Management Applications*, Third Ed. New York, Free Press.

Bass, B.M. (1985). *Leadership and Performance Beyond Expectations*, New York, Free Press.

Beugre, C. D., Acar, W. & Braun, W. (2006). Transformational Leadership in Organizations: an Environment-induced Model, *International Journal of Manpower,* 27(1), 52-62.

Brownell, J. (1991). Middle Managers: facing the communication Challenge, *Cornell Hotel and Restaurant Administration Quarterly,* 31(4), 52-59.

Brubakk, B. & Wilkinson, A. (1996). Agents of Change? Bank Branch Managers and the Management of Corporate Culture Change, *International Journal of Service Industry Management,* 7 (2), 21-43.

Burns, T. & Stalker, G. M. (1961). *The Management of Innovation,* London, Tavistock.

Buus, I. & Saslow, S. (2005). The Evolution of Leadership Development, *Strategic HR Review, 4(2),* 28-31

Caldwell, R. (2003). Change Leaders and Change Managers: Different or complementary? *Leadership and Organization Development Journal,* 24(5), 285-293.

Chandrakumara, A. & Sparrow, P. (2004). Work Orientation as an Element of National Culture and its Impact on HRM Policy-Practice Design Choices, *International Journal of Manpower,* 25 (6), 564- 589.

Chung, Ruey-Gwo & Lo, Chieh-Ling. (2007). The Relationship between leadership Behaviour and Organizational Performance in Non-Profit Organizations, using Social Welfare Charity Foundations as an Example, *Journal of American Academy of Business*, 12 (1), 83-87.

Davis, Keith (1977). *Human Behaviour at Work,* 5th ed., New York, McGraw-Hill Book Company.

Delery, J. E. & Doty, D. H., (1996). Modes of Theorizing in Strategic Human Resource Management: Tests of Universalistic, Contingency, and Configurational Performance Predictions, *Academy of Management Journal*, 39(4), 802-835.

De Silva, L. A. (1974). *Buddhism: Beliefs and Practices in Sri Lanka,* Colombo, Wesley Press.

Drucker, P. (1980), *Managing In Turbulent Times,* Oxford: Butterworth-Heinemann Ltd.

Fernando, M. & Jackson, B. (2006). The Influence of Religion-based Workplace Spirituality on Business Leaders' Decision Making: An Inter-faith Study, *Journal of Management and Organization,* 12(1) 23-39.

Freeman, M.A. (1997). Demographic Correlates of Individualism and Collectivism: a study of Social Values in Sri Lanka, *Journal of Cross-Cultural Psychology*, 28(3) May.

Goll, I. & Sambharya, R. B. (1998). Rational Model of Decision making, Strategy, and Firm Performance, *Scandinavian Journal of Management,* 14 (4), 479-492.

Grant, R. M. & Cibin, R. (1996). The Chief Executive as Change Agent, *Planning Review,* 24(1), 9-11.

Hancer, M., Ozturk, A. B., & Ayyildiz, T. (2009). Middle-Level Hotel Managers' Corporate Entrepreneurial Behaviour and Risk-Taking Propencities: A Case of Didim, Turkey, *Journal of Hospitality Marketing & Management,* 18, 523-537.

Hater, J. J. & Bass, B. M. (1988). *Journal of Applied Psychology,* 77 (4), 695-702.

Hofstede, G. (2001), *Culture's Consequences; Comparing Values, Behaviours, Institutions, and Organizations Across Nations, 2nd. Ed.,* Thousand Oaks: Sage Publications.

Hofstede, G. (1991), *Cultures and Organizations; Software of the Mind*, London: McGraw-Hill.

Hofstede, G. (1980). *Culture's Consequences; International Differences in Work-Related Values,* (London: Sage Publications).

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., Gupta, V. (2004). *Culture, Leadership and Organizations. The Global Study of 62 Societies*, Thousand Oaks, Sage.

Iida, T. & Morris, J. (2008). Farewell to the Salaryman? The Changing Roles and Work of Middle Managers in Japan, *The International Journal of Human Resource Management,* 19(6), 1072-1087.

Imai, M., (1991). *KAIZEN – the Key to Japan's Competitive Success,* Singapore, McGraw-Hill.

Jo, S. & Shim, S.W. (2005). Paradigm Shift of Employee Communication: The Effect of Management Communication on Trusting Relationships, *Public Relations Review,* 31, 277-280.

Kaplan, R. S. & Norton, D. P. (1992). The Balanced Scorecard - Measures that Drive Performance. *Harvard Business Review*, Jan-Feb.71-79

Karube, M., Numagami, T. & Kato, T. (2009) Exploring Organizational Deterioration: 'Organizational Deadweight' as a Cause of Malfunction of Strategic Initiatives in Japanese Firms, *Long Range Planning,* 42, pp. 518-544

Keller, R. T., Slocum JR, J. EW. and Susman, G. I., (1974). Uncertainty and Type of Management System in Continuous Process Organizations, *Academy of Management Journal,* Vol 7 (1), pp.56 – 68.

Kumarasinghe, S. & Hoshino, Y. (2003). Influence of Corporate Culture, Structure and Strategy on Organizational Performance: An Empirical Study of Business Organizations in Sri Lanka. *Japanese Journal of Administrative Science,* 16(3), 227-242

Liouville, J., & Bayad, M. (1998). Human Resource Management and Performance: Proposition and Test of a Causal Model, *Human Systems Management*, 17, 183-192

Mak, S. K.M. and Akhtar, S. (2003). Human Resource Management Practices, Strategic Orientations, and Company Performance: a Correlation Study of Publicly Listed Companies. *The Journal of American Academy of Business*, 2(2), 510-515

Mamman, A., Akuratiyagamage, V. W. and Rees, C. J. (2006). Managerial Perception of the Role of the Human Resource Function in Sri Lanka: A Comparative Study of Local, Foreign-Owned and Joint-Venture Companies. *International Journal of Human Resource Management*, 17(12), 2009-2020

Marcoulides, G. A. & Heck, R. H. (1993). *Organizational Culture and Performance: Proposing and Testing a Model,* Organization Science, 4(2), 209-225.

Miles, R. E. & Snow, C. C, (1978). *Organizational Strategy, Structure, and Process,* New York: McGraw-Hill

Nanayakkara, G. (1988). *Culture and Management in Sri Lanka,* Colombo, Sri Lanka Institute of Co-operative Management.

Neelankavil, J. P., Mathur, A., & Zhang, Y. (2000). Determinants of Managerial Performance: A Cross- Cultural Comparison of the Perceptions of Middle-Level Managers in Four Countries, *Journal of International Business Studies,* 31(1), 121-140

Nielsen, A. E. & Thomsen, C. (2009). CSR Communication in Small- and Medium-sized Enterprises: A Study of the Attitudes and Beliefs of Middle Managers, *Corporate Communications, an International Journal,* 14(2), 176-189.

Niles, F. S. (1999). Towards a Cross-Cultural Understanding of Work-Related beliefs, *Human Relations,* 52(7), 855-867.

Nonaka, I & Takeuchi, H. (1997) A New Organizational Structure in *Knowledge in Organizations*, (Ed) Laurence Prusak, Butterworth-Heinemann, USA, pp 99-133

Nonaka, I. & Takeuchi, H., (1995) *The Knowledge Creating Company,* (New York: Oxford University Press)

Oshagbemi, T. & Ocholi, S. A. (2006). Leadership Styles and Behaviour Profiles of Managers, *Journal of Management Development,* 25(8), 748-762.

Paladino, A. (2007). Investigating the Drivers of Innovation and New Product Success: A Comparison of Strategic Orientations, *The Journal of Product Innovation Management*, 24, 534-553.

Prajogo, D. I. & Sohal, A. S. (2006). The Relationship between Organization Strategy, Total Quality Management (TQM), and Organization Performance – The Mediating Role of TQM, *European Journal of operational Research,* 168, 35-50.

Rahula, Rev.Walpola. (1966) . *History of Buddhism in Ceylon*, Colombo, M.D.Gunasena & Co. Ltd.

Ramamoorthy, N., Kulkarni, S. P., Gupta, A., & Flood, P. C. (2007). Individualism-Collectivism Orientation and employee Attitudes: A comparison of Employees from the High-technology Sector in India and Ireland, *Journal of International Management,* 13, 187-203.

Robbins, S. P. (1983). The Theory Z Organization from a Power-Control Perspective, *California Management Review,* 25(2), 67-75.

Robson, M. J., Skarmaes, D., & Spyropoulou, S. (2006). Behavioural Attributes and Performance in International Strategic Alliances: Review and Future Directions. *International Marketing Review*, 23 (6), 585-609.

Rodsutti, M. C. & Swierczek, F. W. (2002). Leadership and Organizational Effectiveness in Multinational Enterprises in Southeast Asia, *Leadership & Organization Development Journal,* 23(5), 250-259

Rosenthal, R. & Rosnow, R. L. (1991). *Essentials of Behavioral Research: Methods and Data Analysis,* Singapore: McGraw-Hill.

Schilit, W. K. (1987). An Examination of the Influence of Middle-Level Managers in Formulating and Implementing Strategic Decisions, *Journal of Management Studies*, 24(3), 271-293

Schmid, H. (2006). Leadership Styles & Leadership Changes in Human & Community Service Organizations, *Nonprofit Management & Leadership*, 17(2), 179-194.

Schmitt, N. (1996). Uses and Abuses of Coefficient Alpha, *Psychological Assessment,* 8(4), 350-353.

Spiliotopoulou, G. (2009). Reliability Reconsidered: Cronbach Alpha and Paediatric Assessment in Occupational Therapy, *Australian Occupational Therapy Journal,* 56, 150-155.

Thompson, J., (1967), *Organization in Action,* (New York; McGraw_hill).

Walumbwa, F. O. & Lawler, J. J. (2003). Building Effective Organizations: Transformational leadership, Collectivist Orientation, Work-related Attitudes and Withdrawal behaviours in Three Emerging Economies, *International Journal of Human Resource management*, 14 (7), 1083-1101.

Weber, Max. (1947). *The Theory of Social and Economic Organizations,* trans. by A.M. Henderson and Talcott Parsons, Oxford University Press, Fair Lawn, N.J.

Westley, F. R. (1990). Middle Managers and Strategy: Microdynamics of Inclusion, *Strategic Management Journal*, 11, 337-351

White, R. & Lippitt, R. (1960). *Autocracy and Democracy*. Harper & Row, New York.

Wu, C., Neubert, M.J., & Yi, X., (2007), "Transformational Leadership, Cohesion Perceptions, and Employee Cynicism about Organizational Change; The Mediating Role of Justice Perceptions, *The Journal of Applied Behavioural Science,* Vol. 43 (3), pp. 327-351.

Xenikou, A. & Simosi, M. (2006). Organizational Culture and Transformational Leadership as Predictors of Business Unit Performance, *Journal of Managerial Psychology*, 21 (6), 566-579

Yang, J, Zhang, Z, & Tsui, A. S. (2010). Middle Manager Leadership and Frontline Employee Performance: Bypass, Cascading, and Moderating Effects, *Journal of Management Studies,* 47(4), 654-678

Zaleznik, A. (1990). The Leadership gap, *The Executive*, 4 (1), 7- 22

Table 1. Mean differences among organization groups

Behavioural & performance factors	Total Sample* N=121		Collectivistic N=81		Individualistic N=26	
	Mean	SD	Mean	SD	Mean	SD
leadership	2.7913	.49425	3.0000	.32914	2.1410	.32895
communication	2.8836	.58562	2.9600	.60766	2.7067	.49366
group decision making	2.8078	.74356	2.8907	.72058	2.6273	.73884
quality	2.9965	.51798	3.0240	.52911	2.8692	.34382
service	3.1000	.60408	3.1234	.58577	2.9800	.54924
innovation	2.7788	.68662	2.8248	.67682	2.5972	.64440
new idea proposals	2.6942	.71480	2.7368	.69510	2.6667	.76376
satisfaction	2.8704	.47543	2.9481	.45584	2.6087	.49901
profit growth	381.285	1156.389	276.226	575.568	805.331	2241.835
average sales growth	161.268	575.607	112.189	547.616	363.511	747.408
ROI	.1368	.1045	.1387	.1154	.1249	.0891

* For quantitative measures total N=66, Collectivistic N=41, Individualistic N=25

Table2. Regression Results for Qualitative Performance Measures in the Total Sample (N=121)

Dependent Variables	Independent Variables In the Model	B	SEB	β	t value
Quality	Communication Group decision making Constant R^2=.345, F=23.75***	.178 .334 1.550	.083 .067 .236	.204 .470	2.151** 4.963*** 6.563***
Service	Communication Group decision making Constant R^2=.211, F=12.00***	.181 .280 1.790	.104 .083 .294	.182 .349	1.745 3.353** 6.086***
Innovation	Communication Group decision making Constant R^2=.284, F=18.01***	.327 .330 .893	.115 .093 .328	.280 .348	2.847** 3.537** 2.719**
New idea	Communication Group decision making Constant R^2=.176, F=9.161***	.273 .271 1.118	.144 .113 .386	.214 .269	1.902 2.387* 2.895**
Satisfaction	Communication Group decision making Constant R^2=0.79, F=3.796*	.017 .174 2.325	..093 .073 .259	.021 .270	.183 2.375* 8.961***

(*) is p< .05, (**) is p<.01, (***) is p<.001

Table 3. Regression Results for Qualitative Performance Measures under Collectivistic leaders

Dependent Variables	Independent Variables in the Model	B	SEB	β	t value
Quality	Communication Group decision making Constant R^2=.380, F=19.652***	.175 .394 1.395	.094 .080 .297	.197 .518	1.863 4.905*** 4.691***
Service	Communication Group decision making Constant R^2=.317, F=15.097***	.192 .383 1.458	.106 .091 .339	.198 .461	1.806 4.202*** 4.306***
Innovation	Communication Group decision making Constant R^2=.267, F=12.204***	.339 .321 .902	.129 .110 .403	.296 .328	2.625* 2.906** 2.237*
New idea	Communication Group decision making Constant R^2=.173, F=6.776**	.304 .238 1.103	.154 .122 .452	.247 .244	1.972 1.953 2.439*
Satisfaction	Communication Group decision making Constant R^2=.125, F=4.729*	-.033 .228 2.391	.094 .076 .290	-.044 .367	-.353 2.975** 8.234***

(*) is p< .05, (**) is p<.01, (***) is p<.001

Table 4. Regression Results for Qualitative Performance Measures under Individualistic Leaders

Dependent Variables	Independent Variables In the Model	B	SEB	β	t value
Quality	Communication Group decision making Constant R^2=.177, F=2.048	.217 .089 2.044	.171 .117 .419	.302 .182	1.269 .764 4.882***
Service	Communication Group decision making Constant R^2=.189, F=2.104	.467 .032 1.607	.288 .177 .654	.409 .045	1.622 .179 2.458*
Innovation	Communication Group decision making Constant R^2=.452, F=7.005**	.478 .371 .292	.265 .180 .660	.366 .418	1.803 2.058 .442
New idea	Communication Group decision making Constant R^2=.246, F=2.282	.647 .233 .337	.502 .355 1.109	.365 .186	1.290 .657 .304
Satisfaction	Communication Group decision making Constant R^2=.010, F=.077	.129 -.038 2.339	.340 .217 .699	.123 -.056	.381 -.173 3.348**

(*) is p< .05, (**) is p<.01, (***) is p<.001

Table 5. Regression Results for Quantitative Performance Measures for the Total Sample (N=66)

Dependent Variables	Independent Variables In the Model	B	SEB	β	t value
Profit growth	Communication Group decision making Constant R^2=0.16, F=.420	-103.794 138.772 187.179	219.234 154.520 685.647	-.069 .131	-.473 .898 .273
Return on investment	Communication Group decision making Constant R^2=.124, F=3.673*	-.079 .049 .224	.034 .024 .105	-.323 .284	-2.347* 2.062* 2.139*
Sales growth	Communication Group decision making Constant R^2=.046, F=1.226	-142.212 -128.602 997.401	184.500 127.004 571.685	-.112 -.148	-.771 -1.013 1.745

(*) is p< .05, (**) is p<.01, (***) is p<.001

Table 6. Regression Results for Quantitative Performance Measures under Collectivistic Leaders (N= 41)

Dependent Variables	Independent Variables In the Model	B	SEB	β	t value
Profit growth	Communication Group decision making Constant R^2=.103, F=2.243	-140.387 310.735 -217.144	200.704 147.560 691.214	-.109 .328	-.699 2.106* -.314
Return on investment	Communication Group decision making Constant R^2=.220, F=5.501**	-.110 .062 .297	.038 .028 .131	-.421 .323	-2.899** 2.226* 2.265*
Sales growth	Communication Group decision making Constant R^2=.030, F=.590	173.932 -6.456 -454.641	162.948 115.492 554.608	.176 -.009	1.067 -.056 .417

(*) is p< .05, (**) is p<.01, (***) is p<.001

Table 7. Regression Results for Quantitative Performance Measures under Individualistic Leaders (N=25)

Dependent Variables	Independent Variables In the Model	B	SEB	β	t value
Profit growth	Communication Group decision making Constant R^2=.293, F=1.865	1791.576 -1187.657 -1350.310	1126.938 616.696 2171.543	.709 -.859	1.590 -1.926 -.622
Return on investment	Communication Group decision making Constant R^2=.310, F=2.020	.149 -.071 -.131	.075 .041 .145	.877 -.760	1.990 -1.725 -.908
Sales growth	Communication Group decision making Constant R^2=.506, F=4.612*	-1132.697 -243.034 4479.307	788.322 431.395 1519.051	-.536 -.210	-1.437 -.563 2.949*

(*) is $p < .05$, (**) is $p<.01$, (***) is $p<.001$

A Prediction Model for Initial Trust Formation in Electronic Commerce

Jollean K. Sinclaire

Department of Computer and Information Technology

Arkansas State University College of Business

P.O. Box 130, State University, AR 72467

Tel: 011-1-870-972-3990　　　E-mail: jsinclaire@astate.edu

Judith C. Simon

Department of Management Information Systems

Fogelman College of Business and Economics, University of Memphis

3675 Central Avenue, Memphis, TN 38152

Tel: 011-1-901-678-4613　　　E-mail: jsimon@memphis.edu

Ronald B. Wilkes

Department of Management Information Systems (Retired)

Fogelman College of Business and Economics, University of Memphis

3675 Central Avenue, Memphis, TN 38152

Tel: 011-1-901-678-4613　　　E-mail: rbwilkes@memphis.edu

Abstract

This research investigates trust-building strategies that may influence transactions between individuals and unknown Internet firms, focusing on three influential components that mediate the relationship between online shoppers and online vendors. Results indicate significant direct effects for trust in the Internet infrastructure, susceptibility to the social influence of media, and the presence of influential site characteristics on user willingness to provide personal information to unknown Internet firms. This study extends the research on trust in electronic commerce by providing a prediction model that is demonstrated to calculate the probability of user willingness to provide information. The utility of the model for identifying the relative importance of factors and predicting outcomes lends insight into important issues in online trust formation. Knowledge of effective trust-building strategies guide organizations that use the Internet for selling, marketing, or servicing customers to gain maximum benefits from investments in e-commerce applications.

Keywords: Trust, Trusted third parties, Social presence, Social influence, Logistic regression

1. Introduction

The increasing rate of data breaches (ITRC, 2009) and the increasing consumer fear of identity theft (Steiner, 2008) indicate a need for guidance on investment in e-commerce applications that meet specific data collection needs of organizations and communicate a credible expression of trustworthiness. Given the current challenging economic environment, it is especially important in the context of initial trust formation that organizations adopt a web strategy that maximizes user confidence yet minimizes investment in the e-commerce application.

Two information processing models offer a theoretical foundation for examining factors that influence online information-giving behavior. The heuristic-systematic model of persuasive communication (Chaiken and Eagly, 1983) and the elaboration-likelihood model (ELM) of persuasion (Petty and Cacioppo, 1986) are concerned with changes in attitude as a result of exposure to persuasive messages. Both theories assume that, in the absence of motivation for effortful cognition, individuals process information at a minimal level. Both theories describe cognitive processing as either deep/systematic or shallow/heuristic. Heuristic processing describes a minimizing effort that is more likely to occur when there is limited knowledge, time, or competing demands on cognitive ability (Chaiken, Wood and Eagly, 1996). Systematic processing describes a more effortful process that makes greater demands on cognitive resources (Chaiken, Wood and Eagly, 1996). In the process of initial trust formation, users consider a range of information and utilize a variety of cognitive processing strategies in their decision-making process relating to online information-giving behavior.

This paper provides a review of prior research, followed by sections describing the research objective, research methodology, and data analyses. The paper concludes with a discussion and conclusion section identifying important findings from this research, along with suggestions for future research.

2. Background and Literature Review

A review of research on user willingness to complete a transaction on the Internet reveals common themes of trust in the Internet store (Jarvenpaa, Tractinsky and Vitale, 2000), trust in the vendor (Pennington, Wilcox and Grover, 2003), trust in organizational practices (Smith, Milberg and Burke, 1996), and user perception of Web site features (Belanger, Hiller and Smith, 2002; Gefen and Straub, 2004; Pennington et al., 2003). The literature on trust includes five research streams: personality-based, cognition-based, calculative-based, knowledge-based, and institution-based trust (McKnight, Cummings and Chervany, 1998). Personality-based trust describes trust tendencies that are developed during childhood; cognition-based trust describes trust that develops as a result of first impressions and cues from the environment. Calculative-based trust is based on perceived economic outcomes, and knowledge-based trust occurs as a result of a history of interaction (Gefen, Karahana and Straub, 2003). Institution-based trust is generated by "guarantees, safety nets, or other structures" that convey a sense of security in a situation (Gefen et al., 2003; McKnight et al., 1998).

2.1 Trust in the Internet Infrastructure

The Lee and Turban (2001) model of consumer trust in Internet shopping (i.e., trust in the computerized medium) features the perceived technical competence, perceived system performance, and user understanding of the system or the medium. There is evidence of a link between positive perceptions about the trustworthiness of the Internet and Internet purchase intentions (George 2002, 2004), and between institution-based structural assurance and trust-related Internet behaviors (McKnight and Chervany, 2001). Structural assurance is characterized as "technological Internet safeguards" such as encryption (McKnight and Chervany, 2001, p. 5).

2.2 Web Site Characteristics

Trusted third parties (TTPs) are organizations that work to reduce consumer fear about online security and privacy and increase trust in e-commerce transactions (Palmer, Bailey, Faraj and Smith, 2000). A TTP acts as a guarantor, providing an assurance of authentication or a brand image or reputation as a foundation for trust. TTPs may be classified according to purpose or intention. Privacy seals represent certified data collection and data usage processes (TrustE, n.d.; BBB, 2010), while security symbols provide assurance that the site uses the secure sockets layer (SSL) cryptographic protocol (GeoTrust, n.d.; VeriSign, 2010). A vulnerability symbol verifies third-party scans for vulnerabilities (HackerSafe, 2010). Reliability symbols vouch for the identity of the Web site and may affirm ethical practices (BBB, 2010; SquareTrade, 2010; WebAssured, n.d.). Consumer rating symbols indicate a satisfied customer experience with the Web site (BizRate, 2009). Although e-commerce literature offers contradictory findings on the ability of TTPs to influence online users, there is evidence of the positive effect of TTPs on purchasing likelihood (Fogg, Soohoo and Danielson, 2002) and information disclosure for some users (Miyazaki and Krishnamurthy, 2002). Additionally, as symbols of expertise, the presence of these artifacts may result in less thought given to scrutiny of information about the Web vendor (Chaiken et al., 1996; Petty and Cacioppo, 1986). And recent research found a strong correlation between use of Web assurance seals and user intention to use an online payment system (Ozkan, Bindusara and Hackney, 2010).

Web site social presence is a subjective quality based on user perception. It is defined as the perception of an interpersonal interaction due to the impression of human contact and the information richness of the medium (Gefen and Straub, 1997). Social presence features may include photographs of smiling customer service representatives as well as online-chat. Although Wang and Emurian (2005) found "social cue design elements" (p. 49) to be less important in promoting trust than visual design and content design, Gefen and Straub (2004) found evidence that the perception of social presence increases trust in e-commerce.

2.3 Social Influence

Social influence, sometimes referred to as subjective norms, is frequently decomposed into relevant referent groups. For example, in research that examined the use of information technology (IT) in an organization setting, Taylor and Todd (1995) decomposed sources of social influence into three groups: peers, superiors, and subordinates. In the context of e-commerce, Limayem, Khalifa, and Frini (2000) decomposed sources of social influence into three groups (friends, family and media), finding the social influence of media and family to have an effect on online shopping. Hwang (2005) found all three dimensions of social influence (friends, family, media) to be significantly related to online trust, while Bhattacherjee (2000) found news reports, popular press and mass media to have a large effect on subjective norms leading to intention to accept e-commerce.

The existing literature suggests that these three factors are influential components in the complex relationship that occurs between an individual and an unknown online vendor: trust in the Internet infrastructure, Web site features of institutional trust and social presence, and social influence. These factors form the framework for the research presented here.

3. Research Objective and Hypotheses

In view of the inherent insecurity of the Internet and user concerns for information privacy, a question that should interest organizations seeking to maximize investments in e-commerce is: What cues of institutional trust and social presence are effective in overcoming low trust in the Internet infrastructure and social/media influences to persuade first-time users to provide personal information so that online transactions are facilitated? Specifically, three research questions are addressed:

In the context of initial trust formation:

- Does trust in the Internet infrastructure affect user willingness to provide personal information online?

- Do Web site elements of institutional trust and social presence affect user willingness to provide personal information online?

- Does general social influence affect user willingness to provide personal information online?

The research model is presented in Figure 1.

Trust in the Internet infrastructure is defined as trust in the safety and integrity of the fundamental security measures used to protect personal information during online transactions (McKnight and Chervany, 2001). Influential Web site characteristics are defined as artifacts of institutional trust (e.g., links to privacy policies and symbols of trusted third parties), and elements of social presence (e.g., e-mail links, images of service representatives, and options to speak online with service representatives in real time). User susceptibility to social or interpersonal influence is defined as the tendency of persons to change their online information-giving behavior as a result of social pressure (McGuire, 1968). The dependent variable is willingness to provide personal information ranging from data perceived as low risk (i.e., name, email address) to data perceived as high risk (i.e., credit card number, social security number) (Miyazaki and Krishnamurthy, 2002).

4. Research Methodology

The research consisted of a 3×3×3 between-subjects quasi-experiment designed to test the effects of (1) trust in the Internet infrastructure, (2) social influence, and (3) Web site features of institutional trust and social presence on user willingness to provide personal information. The context of the study was anticipated patronage of an unknown Web vendor that offered a desired product at an acceptable price. The subjects were undergraduate and graduate students, considered to be reasonable proxies for online shoppers based on age and education (Drennan, Mort and Previte, 2006; Mauldin and Arunachalam, 2002). A total of 628 survey responses were included in the final analysis.

Respondents were advised that the topic of the survey was "Using the Internet for Personal Business." Using an online instrument, subjects responded to questions that assessed trust in the Internet infrastructure and susceptibility to social influence before being assigned to a media treatment. Assignment to treatment groups was accomplished with alphabetic self-selection menus. That is, based on the first letter of the last name (using self-selection), subjects were assigned to one of three media conditions: positive, negative, or none. Then, based on the first letter of the first name (using self-selection), subjects were assigned to one of three Web site conditions: low-, moderate-, or high-level. According to Shadish, Cook and Campbell (2002), this procedure is quasi-experimental in that random assignment occurred by means of self-selection.

User trust in the Internet infrastructure was evaluated using measures adapted from previous research (Lee and Turban, 2001; McKnight, Choudhury and Kacmar, 2002; George, 2004). Following assignment to a media treatment, susceptibility to social influence was measured using scales developed and validated as part of this study. The media treatments were composites of positive or negative excerpts pertaining to the safety of the Internet (selected from national magazines or newspapers and government or non-profit online sources) presented as print media. To provide and control for source credibility, both messages were presented as an article in *USA Today*. Following assignment to a simulated Web site on which the type and number of elements that represent guarantees, institutional assurances of trustworthiness, and social presence were varied, the effect of these elements was evaluated using measures adapted from previous research (Miyazaki and Krishnamurthy, 2002). The simulated Web site created for this experiment was "product-neutral" in that it typified a "registration" page on which new users would provide personal information to learn more about a product or service.

5. Data Analyses

Statistical analyses included descriptive statistics, univariate analyses of factors affecting trust in the Internet infrastructure and susceptibility to social influence, cross-tabulations and chi-square tests to evaluate differences across treatment groups, and correlational analyses among the predictor variables. Logistic regression models were constructed to examine main and interaction effects.

5.1 Descriptive Statistics

The respondents were fairly evenly split by gender (342 males, 286 females), mostly young (453 were 18 to 24 years of age, 175 were 25 and older), and racially diverse (371 White, 182 Black/African American, 75 other races).

The majority of respondents reported using the Internet extensively: 584 reported daily use; time spent on the Internet averaged 17 hours per week. The majority of respondents (449) reported having used the Internet for 7 years or more. Approximately one fourth of the respondents reported making an Internet purchase on a monthly basis, while slightly more than half reported making an Internet purchase a couple of times a year. Table 1 presents characteristics of the participants.

5.2 Logistic Regression Analyses

Based on results of chi-square tests and correlational analysis, potential predictors of willingness to provide information included demographic characteristics, trust in the Internet infrastructure, susceptibility to social influence, media treatment, and Web site treatment. This paper focuses on the results of the logistic regression analyses.

Logistic regression relates one or more continuous or categorical predictor variables to a dichotomous dependent variable by analyzing the logit or natural logarithm of the odds of the reference outcome, defined as P_i (the probability of an event). If P_i is the probability of a "Yes" response, then $1-P_i$ is the probability of a "No" response.

The logit transformation occurs in two steps: First, the odds of the event are determined ($P_i/1-P_i$), then the natural logarithm (ln) of the odds is calculated (Pampel, 2000). It is the logit, or log(odds), that serves as the dependent variable in logistic regression.

$$\log(odds) = logit(P_i) = \ln (P_i /1- P_i)$$

A simple logistic regression equation with independent variable X takes the form:

$$logit(P_i) = a + b_1 X$$

For a continuous covariate, b_1 gives the change in the log(odds) for an increase of one unit in X. For example, if b_1 = .555, this value is exponentiated to learn the log(odds) or odds ratio = 1.742. (In SPSS output, this is seen as Exp(B) = 1.742.) The odds ratio minus one (1.742 – 1) means a one-unit increase in X results in a 74.2% increase in the outcome of the target dependent variable (i.e., a "Yes" response).

For a categorical covariate, b_1 gives the extent to which the odds in favor of one outcome are raised when X is raised from the reference level to another level. For example, if b_1 = 1.888, this value is exponentiated to learn the odds ratio = 6.606. (In SPSS output, this is seen as Exp(B) = 6.606.) This means the odds of saying "Yes" (the target outcome) for those who did not receive a media treatment (the reference group) are 6.6 times greater than for those who received the negative media treatment (the comparison group).

An odds ratio greater than 1.0 signifies a positive relationship between two variables, and an odds ratio of less than 1.0 signifies a negative or inverse relationship. An odds ratio of 1.0 means there is no relationship between a predictor and the outcome (Menard, 1995). When an odds ratio is a fraction (i.e., .750), the reciprocal (1/.750 = 1.33) is interpreted such that the odds of saying "Yes" for those who received the negative media treatment (the comparison group) are 1.33 times greater than for those who did not receive a media treatment (the reference group) (Pedhazur, 1997).

The logistic regression models were constructed using a model-building strategy (Hosmer and Lemeshow, 1989) that calls for univariate analysis of each variable to select variables for multivariate analyses with subsequent analyses considering interactions among the variables. Because chi-square statistics revealed significant differences in outcome between gender, race, media, and Web site groups, those variables were included in the initial regression model as were the continuous variables of interest (trust in the Internet, social influence of friends, social influence of family, and social influence of media). The results provided a subset of five covariates with *p* < .10 that were retained for further analysis: race, trust, media, site, and social influence of family. The results of the reduced model showed these five variables to be significant at the .05 level for at least one outcome variable

(phone number, credit card number, social security number) or all six outcome variables. Table 2 contains the results of the reduced multivariate model.

Ten two-way interactions may be formed from the variables in the reduced multivariate model. Following the strategy suggested by Hosmer and Lemeshow (1989), further analyses examined each of these interactions with all variables retained from the reduced multivariate model. When all outcome variables are considered collectively, none of the interaction models provides a significant improvement over the main effects only model. Therefore, the main effects model was selected for further analysis using the subset of predictor variables identified as significant for willingness to provide credit card number. Those covariates are race, trust, media, site, and social influence of family. This model was selected because it shares the highest level of significance (.000) with the model identified for willingness to provide address, and it is the most inclusive model; that is, it includes all variables that are significant for the remaining outcome variables. Of the five parameters in the final model, four were statistically significant. The estimates of the main effects logistic regression model are presented in Table 3.

The most frequently used test of significance of an individual predictor is the Wald Chi-square statistic (Pampel, 2000). This value indicates the relative importance of the individual variable. The estimates shown in Table 3 indicate four covariates in the model are important factors for willingness to provide personal information on the Internet in the context of initial trust formation.

Continuous variables. The Exp(B) value or odds ratio value for **trust** (1.463) indicates a one-unit increase in trust results in a 46.3% increase in the odds of the subject providing a credit card number. (Trust in the Internet infrastructure ranges in value from -3 to +3 in increments of 0.25.) Based on a negative coefficient and a fractional odds ratio, using the reciprocal, the .868 odds ratio for **social_2** indicates a one-unit increase in social influence of family results in a 15.2% decrease in the odds that the subject will provide a credit card number. (Social influence ranges in value from -3 to +3 in increments of 1.0.)

Categorical variables. The reference group for race is White; and race(1) compares Asian subjects to the reference group; race(2) compares Native Hispanic subjects to the reference group; race(3) compares Black/African American subjects to the reference group. Based on a negative B-value and a fractional odds ratio, using the reciprocal, the 3.67 odds ratio for race(1) indicates an Asian subject is 2.72 times less likely to provide a credit card number compared to a White subject (the reference group).

The reference group for site is low-level; and site(1) compares the high-level treatment to the low-level treatment; site(2) compares the moderate-level treatment to the low-level treatment. The odds ratio for site(1) indicates a subject who receives a high-level site treatment is 1.6 times more likely to provide a credit card number than a subject who receives a low-level site treatment. The odds ratio for site(2) indicates a subject who receives a moderate-level site treatment is 1.7 times more likely to provide a credit card number than a subject who receives a low-level site treatment.

5.3 The Prediction Model

A logistic regression classification table shows the overall success rate in predicting the outcome (yes or no). The overall accuracy of the reduced multivariate model to predict willingness to provide credit card number is 69.4%. The positive predictive value = 55/88 = 62.5%; the negative predictive value = 370/525 = 70.6% (Pedhazur, 1997). The classification table for the logistic regression equation for estimating willingness to provide credit card number is shown in Table 4.

The equation for calculating the probability that a subject will provide a credit card number is given by the equation:

Probability (Yes) = $1/(1+e^{-z})$

where z = the logistic regression equation derived from Table 2. For this model

z = -1.111 -1.003*race(1) + .380*trust - .142*social_2 + .470*site(1) + .544*site(2)

(Note: Race(1) = Asian; site(1) = high-level; site(2) = moderate-level.)

This prediction model can be used to calculate the probability of willingness to provide credit card number based on the subject's race, scores on trust in the Internet infrastructure and susceptibility to social influence of family, and the level of the Web site treatment (low, moderate, high) (Chan, 2004). Several examples of the utility of the prediction model are provided below.

5.3.1 Example 1

Two subjects are presented with a moderate level Web site. Each subject scores 1.5 on trust in the Internet infrastructure and 1.0 on susceptibility to social influence of family. These scores indicate the subjects are moderately trusting of the Internet and consider the opinions of family members when making decisions about providing information online or making purchases on the Internet. The first subject is non-Asian; the second subject is Asian. For the first subject, indicator (dummy) coding for race(1) = site(1) = 0, coding for site(2) = 1, and the logistic regression equation is:

$z = -1.111 + .380*1.5 - .142*1 + .544*1 = 0.139$

$e^{-z} = 1.149$

Probability (Yes) = $1/(1 + 1.149) = .465$

indicating the non-Asian subject is somewhat unlikely to provide a credit number at the moderate-level Web site in the context of initial trust formation.

For the second subject, indicator coding for site(1) = 0, coding for race(1) = site(2) = 1; the logistic regression equation is:

$z = -1.111 - 1.003*1 + .380*1.5 - .142*1 + .544*1 = -1.142$

$e^{-z} = 3.133$

Probability (Yes) = $1/(1 + 3.133) = .242$

indicating the Asian subject is unlikely to provide a credit card number at the moderate-level Web site in the context of initial trust formation. This comparison shows that holding constant all other factors of the model, an Asian subject is much less likely to provide a credit card number than a non-Asian subject.

5.3.2 Example 2

Three subjects are presented with a moderate-level Web site. Each subject scores 2.0 on trust in the Internet infrastructure. However, scores on susceptibility to social influence of family vary from -1 to +1. The first subject's score on social influence of family is -1, indicating a lack of consideration for the opinions of family members when making decisions about providing information online or making purchases on the Internet. For this subject, the logistic equation is:

$z = -1.111 + .380*2 - .142*-1 + .544*1 = -.335$

$e^{-z} = .715$

Probability (Yes) = $1/(1 + .715) = .583$

The second subject's score on social influence of family is zero, indicating a neutral stance on the consideration of the opinions of family members. The logistic equation for this subject is:

$z = -1.111 + .380*2 - .142*0 + .544*1 = .193$

$e^{-z} = .825$

Probability (Yes) = $1/(1 + .825) = .548$

The third subject's score on social influence of family is +1, indicating moderate consideration for the opinions of family members. The logistic equation for this subject is:

$z = -1.111 + .380*2 - .142*1 + .544*1 = .051$

$e^{-z} = .950$

Probability (Yes) = $1/(1 + .715) = .513$

This comparison shows that holding constant race, trust in the Internet infrastructure, and site-level, increasing levels of susceptibility to social influence function to reduce the probability that subjects will provide a credit card number in the context of initial trust formation.

5.3.3 Example 3

Three subjects are compared who differ only on the basis of Web site viewed. These subjects are non-Asian, have moderately high scores on trust in the Internet infrastructure (score=2.0) and low positive scores on susceptibility to social influence of family (score=1.0) indicating moderate consideration of the opinions of family members. The first subject viewed a low-level site, the second subject viewed a moderate-level site, and the third subject viewed a high-level site.

For subject one (low-level site), the logistic regression equation is

$z = -1.111 + .380*2 - .142*1 = -.493$

$e^{-z} = 1.637$

Probability (Yes) = $1/(1 + 1.637) = .379$

For subject two (moderate-level site), the logistic regression equation is

$z = -1.111 + .380*2 - .142*1 + .544*1 = .051$

$e^{-z} = .950$

Probability (Yes) = $1/(1 + .950) = .513$

For subject three (high-level site), the logistic regression equation is

$z = -1.111 + .380*2 - .142*1 + .470*1 = -.023$

$e^{-z} = 1.023$

Probability (Yes) = $1/(1 + 1.023) = .494$

This comparison shows that holding constant race, trust in the Internet infrastructure, and social influence of family, a moderate-level web site results in the highest probability that a subject is willing to provide a credit card number. A high-level site results in a slightly lower probability, and the low-level site produces the lowest probability that a subject is willing to provide a credit card number in the context of initial trust formation.

In summary, the main effects model predicts with 62.5% confidence that, in the context of initial trust formation, Asian subjects are less likely than non-Asian subjects to provide a credit card number; increasing levels of social influence of family result in reduced probabilities that subjects will provide a credit card number; and a moderate-level Web site treatment results in the highest probability that subjects will provide a credit card number.

6. Discussion and Conclusion

The results of this experiment indicate trust in the Internet infrastructure, the presence of Web site features of institutional trust, and susceptibility to the social influence of media are positively related to willingness to provide personal information online in the context of initial trust formation. Additionally, significant differences in online information-giving behavior were observed between ethnic groups.

Evidence of systematic cognitive processing (Chaiken and Eagly, 1983) was provided by results that found significant differences in willingness to provide information across media treatment groups such that subjects who received the positive media treatment were more willing to provide information than subjects who received the negative media treatment. Because the media treatment required reading an article and answering manipulation check questions, these results describe systematic or "deep" cognitive processing (Chaiken et al., 1996). Evidence of heuristic cognitive processing (Chaiken and Eagly, 1983) was provided by results that found the presence of influential Web site characteristics influenced willingness to provide personal information. In the context of initial trust formation, when the online firm is unknown to the user, symbols of trusted third parties may provide brand recognition (Palmer et al., 2000). Because Web site features of institutional trust and social presence are processed as cues, these results describe heuristic or "shallow" cognitive processing (Chaiken et al., 1996). The heuristic-systematic model suggests that cognitive processing modes may occur simultaneously when motivation or capacity or both are high, and both modes of processing may have an impact on judgment. The primary difference in these two paths to attitude change lies in the amount of analysis given to the issue under consideration.

The results of this study provide insight for organizations that seek to adopt a strategy to maximize trust for new online users at the same time that they minimize investment in e-commerce. The utility of the prediction model for identifying the relative importance of factors and predicting outcomes can guide investment on Web site features that are sufficient for the specific data collection needs of the organization.

Because the quasi-experiment simulated a potential information-giving situation for a product-neutral, unknown (un-branded) Web site, the results should be interpreted within that limiting context. Also, this quasi-experiment included only one operationalization each of the media treatment and the Web site. Because media treatments were presented as an article in *USA Today* and the Web site was a fictional corporation, threats to construct validity include mono-operation bias such that the constructs of media influence and Web site features of institutional trust and social presence may have been underrepresented. Additionally, a threat to construct validity results from using one method of measuring outcome variables (i.e., self-report).

Although previous research found social presence to be effective in increasing trust in e-commerce (Gefen and Straub, 2004), this study found no evidence that Web site features of social presence increase user willingness to provide information. Given contradictory findings and anecdotal evidence that Web site social presence features continue to evolve with advances in multimedia technology, future research should explore the use of interactive social features such as live chat and other forms of online communication to learn how multimedia elements impact initial trust in e-commerce.

Regarding differences found in information-giving behavior between subjects who received the positive media treatment and those who received the negative media treatment and in consideration of marketing research that indicates two-sided advertising messages result in higher believability and greater purchase intentions (Golden and Alpert, 1987), future research on media influences could look at the effectiveness of Web site information features such as news links and/or blogs that present opposing media treatments to offset negative media influences.

References

Bhattacherjee, A. (2000). "Acceptance of E-Commerce Services: The Case of Electronic Brokerages." *IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans*. 30(4), 411-420.

BBB Accredited Business Seal. (2010). Retrieved February 25, 2010, from www.bbb.org.

Belanger, F., Hiller, J.S., and Smith, W.J. (2002). "Trustworthiness in electronic commerce: the role of privacy, security, and site attributes." *Strategic Information Systems, 11,* 245-270.

BizRate Store Ratings (2009). Retrieved February 25, 2010, from http://www.bizrate.com/ratings_guide/guide/

Chaiken, S., and Eagly, A.H. (1983). "Communication Modality as a Determinant of Message Persuasiveness and Message Comprehensibility." *Journal of Personality and Social Psychology, 45,* 241-256.

Chaiken, S., Wood, W., and Eagly, A.H. (1996). Principles of Persuasion. In E.T. Higgins and A.W. Kruglanski (Eds.), *Social Psychology. Handbook of Basic Principles* (pp. 702-742). New York: The Guilford Press.

Chan, Y.H. (2004). "Biostatistics 202: Logistic Regression Analysis." *Singapore Medical Journal,45,* 55-61.

Drennan, J., Mort, G.S., and Previte, J. (2006). "Privacy, Risk Perception, and Expert Online Behavior: An Exploratory Study of Household End Users." *Journal of Organizational and End User Computing, 18*(1), 1-22.

Fogg, B.J., Soohoo, C., and Danielson, D. (2002). "How Do People Evaluate a Web Site's Credibility?" *Consumer Reports WebWatch*. Retrieved December 18, 2009, from http://www.consumerwebwatch.org/ dynamic/web-credibility-reports-evaluate-abstract.cfm.

Gefen, D., Karahana, E., and Straub, D.W. (2003). "Trust and TAM in Online Shopping." *MIS Quarterly, 27*(1), 51-90.

Gefen, D., and Straub, D.W. (1997). "Gender differences in perception and adoption of E-mail: an extension to the technology acceptance model." *MIS Quarterly 21*(4): 389-400.

Gefen, D., and Straub, D.W. (2004). "Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services." *Omega: The International Journal of Management Science, 32*(6), 407-424,.

George, J.F. (2002). "Influences on the intent to make Internet purchases. *Internet Research," 12*(2), 165-180.

George, J.F. (2004). "The Theory of Planned Behavior and Internet Purchasing." *Internet Research, 14*(3), 198-212.

GeoTrust, *About Us.* Retrieved February 26, 2010, from www.geotrust.com.

Golden, L., and Alpert, M. (1987). "Comparative Analysis of the Relative Effectiveness of One-and Two-Sided Communication for Contrasting Products." *Journal of Advertising*, *16,* 18-25.

HackerSafe, *About HackerSafe,* 2010. Retrieved February 25, 2010, from www.hackersafe.com.

Hosmer, D.W., and Lemeshow, S. (1989). *Applied Logistic Regression.* New York: John Wiley and Sons.

Hwang, Y. (2005). "An Empirical Study of Online Trust and Consumer Behavior: Cultural Orientation, Social Norms, and Personal Innovativeness in Information Technology." *Proceedings of the Twenty-sixth International Conference on Information Systems,* June 25-28, Las Vegas, Nevada.

ITRC (Identity Theft Resource Center) (2010). "ITRC 2009 Breach List," January 8, 2010. Retrieved January 19, 2010, http://www.idtheftcenter.org

Jarvenpaa, S.L., Tractinsky, N., and Saarinen, L. (1999). "Consumer Trust in an Internet Store: A Cross-Cultural Validation." *Journal of Computer Mediated Communication, 5*(2).

Jarvenpaa, S.L., Tractinsky, N., and Vitale, M. (2000). "Consumer Trust in an Internet Store." *Information Technology and Management*, *1*(1), 45-71.

Lee, M.K., and Turban, E. (2001). "A Trust Model for Consumer Internet Shopping." *International Journal of Electronic Commerce, 6*(1), 75-91.

Limayem, M., Khalifa, M., and Frini, A. (2000)."What Makes Consumers Buy from Internet? A Longitudinal Study of Online Shopping." *IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans, 30*(4), 421-432.

Mauldin, E., and Arunachalam, V. (2002). "An Experimental Examination of Alternative Forms of Web Assurance for Business-to-Consumer e-Commerce." *Journal of Information Systems*, *16*(1), 33-54.

McGuire, W.J. (1968). "Personality and Susceptibility to Social Influence." In E.F. Borgatta and W.W. Lambert (Eds.), *Handbook of Personality Theory and Research,* 1130-1187. Chicago: Rand McNally and Company.

McKnight, D.H., and Chervany, N.L. (2001). "Conceptualizing Trust: A Typology and E-Commerce Customer Relationships Model." *Proceedings of the 34th Hawaii International Conference on System Sciences*, January 3-6, Maui, Hawaii.

McKnight, D.H., Cummings, L.L., and Chervany, N.L. (1998). "Initial Trust Formation in New Organizational Relationships." *Academy of Management Review. 23*(3):472-490.

McKnight, D.H., Choudhury, C.J., and Kacmar, V. (2002). "Developing and Validating Trust Measures for e-Commerce: An Integrative Typology." *Information Systems Research*, *13*(3), 334-359.

Menard, S. (1995). *Applied Logistic Regression Analysis*. Thousand Oaks: Sage Publications.

Miyazaki, A.D., and Krishnamurthy, S. (2002). "Internet Seals of Approval: Effects on Online Privacy Policies and Consumer Perceptions." *Journal of Consumer Affairs, 36*(1), 28-40.

Ozkan, S., Bindusara, G., and Hackney, R. (2010). "Facilitating the adoption of e-payment systems: theoretical constructs and empirical analysis." *Journal of Enterprise Information Management, 23*(3), 305-325.

Palmer, J.W., Bailey, J.P., Faraj, S., and Smith, R.H. (2000). "The Role of Intermediaries in the Development of Trust in the WWW: The Use and Prominence of Trusted Third Parties and Privacy Statements." *Journal of Computer Mediated Communication, 5*(3).

Pampel, F.C. (2000). *Logistic Regression: A Primer.* Thousand Oaks: Sage Publications.

Pedhazur, E.J. (1997). Multiple Regression in Behavioral Research. Explanation and Prediction. 3rd Edition. Stamford: Thompson Learning.

Pennington, R., Wilcox, H.D., and Grover, V. (2003). "The Role of System Trust in Business-to-Consumer Transactions." *Journal of Management Information Systems, 20*(3), 197-236.

Petty, R.E., and Cacioppo, J.T. (1986). Communication and Persuasion: Central and Peripheral Routes to Attitude Change. New York: Springer-Verlag.

Shadish, W.R., Cook, T.D., and Campbell, D.T. (2002). Experimental and Quasi-Experimental Designs for Generalized Causal Inference. Boston: Houghton Mifflin Company.

Smith, H.J., Milberg, S.J., and Burke, S.J. (1996). "Information Privacy: Measuring Individuals' Concerns about Organizational Practices." *MIS Quarterly, 20(2*), 167-196.

SquareTrade, *About Us,* 2010. Retrieved February 26, 2010, from www.squaretrade.com.

Taylor, S., and Todd, P.A. (1995). "Understanding Information Technology Usage: A Test of Competing Models." *Information Systems Research, 6*(2), 144-176.

TrustE, *About TrustE* (n.d.). Retrieved February 25, 2010, from www.truste.com.

VeriSign, *About VeriSign* (2010). Retrieved February 25, 2010, from www.verisign.com.

Wang, Y.D., and Emurian, H.H. (2005). "Trust in E-Commerce: Consideration of Interface Design Factors." *Journal of Electronic Commerce in Organizations,* 3(4), 42-60.

WebAssured, *About Us* (n.d.). Retrieved February 26, 2010, from www.webassured.com.

Table 1. Characteristics of survey respondents

Age		Years Online	
18-24	72%	7 years or more	72%
25-35	21%	4 to 6 years	26%
35-44	5%	3 years or less	2%
45 and over	2%		
		Frequency of Internet Use	
Gender		Daily	93%
Male	54%	Weekly	6%
Female	46%	Monthly or less	1%
Ethnicity		**Frequency of Online Purchase**	
White	59%	Couple of times per year	54%
Black/African American	29%	Monthly	26%
Asian	8%	Weekly	7%
Native Hispanic	2%	Daily	1%
Other	2%		

Note: The final dataset includes 628 cases. The respondents were mostly young, racially diverse and evenly split by gender. Respondents reported frequent usage of the Internet and occasional online purchase activity.

Table 2. Results of Reduced Multivariate Model

	Model chi-square G_m	Sig. of G_m	Significant Variables in the Equation (Wald statistic $p < .05$)
Name	26.574	.002	race, trust
Email	25.718	.002	race, trust, media
Address	31.863	.000	race, trust
Phone	18.750	.027	social_2 (family)
CCN	54.056	.000	race, trust, site, social_2 (family)
SSN	16.952	.049	media

The results of the reduced multivariate model shows five variables to be significant at the .05 level for at least one outcome variable.

Table 3. Logistic Regression Model: Variables in the Equation

	B	SE	Wald	Df	Sig.	Exp(B)
Race			8.854	3	.031	
Race(1)	-1.003	.397	6.398	1	.011	.367
Race(2)	-.595	.739	.648	1	.421	.551
Race(3)	-.367	.203	3.259	1	.071	.693
Trust	.380	.082	21.306	1	.000	1.463
Media			12.353	2	.002	
Media(1)	.409	.217	3.541	1	.060	1.506
Media(2)	-.392	.216	3.282	1	.070	.676
Social_2	-.142	.054	6.862	1	.009	.868
Site			6.702	2	.035	
Site(1)	.470	.227	4.227	1	.039	1.601
Site(2)	.544	.223	5.927	1	.015	1.723
Constant	-1.111	.242	21.082	1	.000	.329

The estimates shown in Table 3 indicate four covariates in the model are important factors for willingness to provide personal information on the Internet in the context of initial trust formation.

Table 4. Prediction Model Classification Table

		Predicted		Percentage Correct
		Willing to Provide CCN		
Observed		No	Yes	
CCN	No	370	33	91.8%
	Yes	154	55	26.3%
Overall Percentage				69.4%

A logistic regression classification table shows the overall success rate in predicting the outcome (yes or no). The positive predictive value = 55/88 = 62.5%; the negative predictive value = 370/525 = 70.6%.
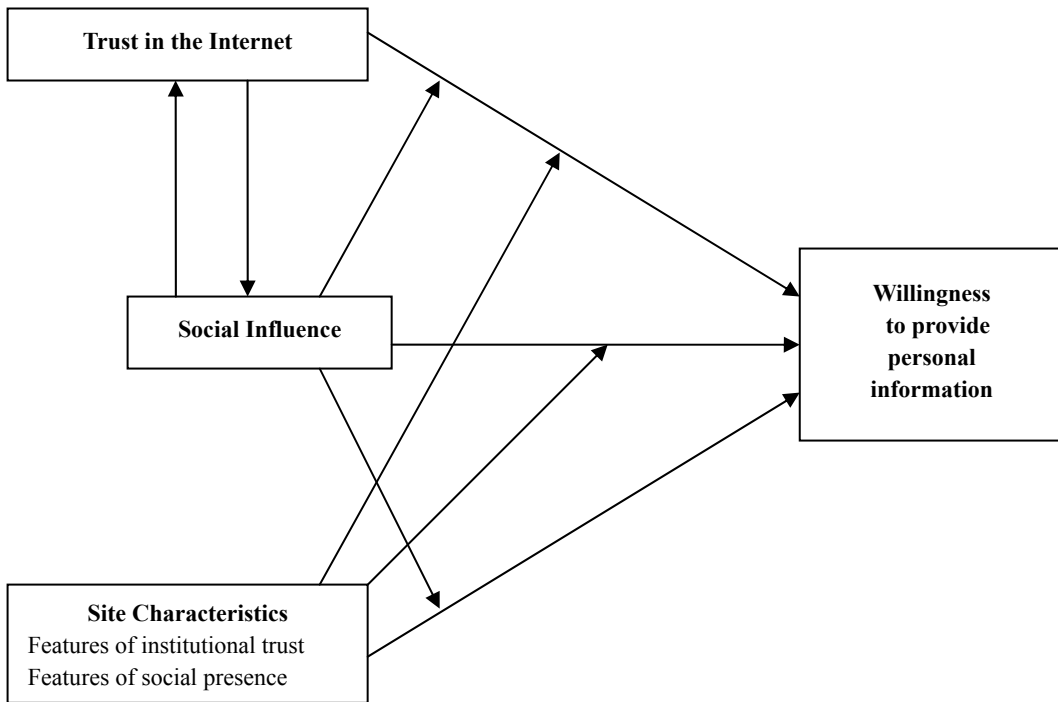
Figure 1. The Research Model

Information System and Firms' Performance: The Case of Malaysian Small Medium Enterprises

Saira Kharuddin (Corresponding author)

Dept. of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia

43400 UPM Serdang, Selangor Darul Ehsan

Tel: 60-3-8946-7630   E-mail: saira@econ.upm.edu.my

Zariyawati Mohd Ashhari

Dept. of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia

43400 UPM Serdang, Selangor Darul Ehsan

Tel: 60-3-8946-7630   E-mail: zariyawati@gmail.com

Annuar Md Nassir

Dept. of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia

43400 UPM Serdang, Selangor Darul Ehsan

Tel: 60-3-8946-7630   E-mail: annuar@econ.upm.edu.my

Abstract

Information systems are widely use by many corporations to automate existing operations and to improve business activities efficiency. Prior researches have shown that information system adoption did increased firms' performances and operations efficiency. In Malaysia, Small and Medium Enterprises (SMEs) has been targeted as a mechanism in generating domestic-led investment to stimulate economic development, particularly after the economic crisis that hit the country in 1997. Thus, it is crucial for SMEs to adopt information system to enhance their business operations capability and efficiency. Nevertheless, SMEs limited resources to implement information systems have been one of the critical barriers that hindered the adoption of information systems. Malaysian government has allocated special grants and various initiatives to assist Malaysian SMEs to adopt information system software. Therefore, this study is to investigate the impact of accounting information system on firm performance of Malaysian SMEs. Panel data was used to analyse firm's performance. Results revealed that SMEs adopting accounting information system show significant improvement in performance compared to non-adopters.

Keywords: Accounting systems, SMEs, Firm performance, Random effect

1. Introduction

The growth of computer technology in 1950s had initiated increasing development in information storing and processing (Rashid, Hossain, & Patrick, 2001). Computer technologies increase the use of information due to its capabilities of analysing massive amount of data and in producing accurate and timely reports. These unique features of computer capabilities have lead to the introduction of various information systems such accounting information system (AIS), manufacturing resource planning system (MRP) and human resource system (HRM). Information system technology has definitely changed the way businesses are being operated (Elliot, 1992). Firms that are responsive to these changes are perceived to be able to gain competitive advantage (Porter, 1980; Fisher and Kenny, 2000).

Computer revolutions have greatly affected many organisation processes and procedures, in particular the accounting process (Ismail, Abdullah, & Tayib, 2003). In the early 1960s, many organizations have started utilizing Inventory Control Packages (ICP) technology to integrate and automate their inventory control system (Rashid, Hossain, & Patrick, 2001). This system has contributed to increases in business productions and transactions as now firms are able to produce more products due to the more systematic order schedule plan offered by the system. Thus, this enhances business activities. More businesses and transactions implied that there will be more accounting data needed to be recorded and updated. Prior traditional accounting method of manually inputting and recording daily transactions has becoming inefficient. Errors such as wrong data entry, inefficient tasks performance and massive utilization of paper products have create many problems to business

activities and organization's performance. These inadequacies have led to the emergence of accounting information system. A system that is able to gather, analyse and produce reports more efficiently.

The economic crisis that hit Malaysian economy in 1997/1998 has been an eye opener to many people, organizations, and government agencies on SMEs contributions. When many major corporations and foreign investors withdrew their investments and move them to new destinations, Malaysian SMEs remained functioning. Their struggle and continuous effort to stay in business provide significant contributions in assisting the country to confront the economic challenges. In addition, many studies asserted that SMEs form an essential component of many economies. In some advanced countries, 98% of SMEs dominated to more than 65% of employments opportunities and contributed to more than 50% of the country's gross domestic product (GDP). For example, SMEs contributions in GDP/total value were 50% in Korea, 55.3% in Japan and 60% in China. In Malaysia, SMEs contribution was valued at 47.3% (Normah, 2006). In addition, SMEs had also been widely recognized as the backbone of Malaysian economic due to their strong contributions in promoting endogenous growth in industry expansion and development (Saleh and Ndubisi, 2006). This has further warrant for more attention to be given to SMEs in assisting their development.

Globalization and open market phenomena have augmented many businesses' operations. They create a new way of doing businesses. Efficient and effective business processes and activities are strongly demanded. Local businesses are not only competing with each other but with multinational companies, which are supported with abundant resources to produce high quality products with reasonable pricing. This increases the pressure on local businesses, in particular to the management to increase business efficiency by making better judgement on business decisions. Real time data and reports would certainly be a considerable assistance to help managers make more informed decisions (Ismail, Abdullah, & Tayib, 2003).

The requirements for updated data in supporting decision making have been increasingly essential particularly for SMEs (El Louadi, 1998). This is because, SMEs face competitive pressure not only from within the SMEs industries and other larger firms, but they also have to compete with giant multinational companies. Informed decisions will enable SMEs to increase business efficiency and remain competitive. Thus, the adoption of accounting information system is expected to provide SMEs with the right capabilities and resources in achieving these objectives.

In corresponding with the increasing dependency for high quality information for decision making, managements need assurance that they are obtaining relevant and reliable information at the right time with a reasonable cost. Assurance could be achieved via advice from professionals to improve decision making quality (Marriot and Marriot, 2000) or from internal control systems utilize by the companies (Kinney, 2000). Nevertheless, study indicated that these information systems, specifically the accounting information systems are underutilized (Gupta and Capen (1996), especially in SME companies (Marriot and Marriot, 2000).

In Malaysia, various studies on information system success and information system impact on firms' performance have been conducted by Foong (1999), Hussein and Karim (2007) and Ismail (2007). In addition, Ismail and King (2007) had conducted a study on the impact of information system alignment with company's objectives in manufacturing companies. They have found out that firms in the aligned group usage of informational sophistication differ considerably from the non-aligned group firms. The difference is highly significant in analytical based applications. In other words, it was noted that applications such as financial analyst, project management, budget variances, modelling, and personnel management have been poorly utilized by SMEs. This finding supported the observation that Malaysian companies, in particular the SME are still far behind from achieving the optimal utilization of information system.

Research in information systems is well aware that information system does not directly affect organizational performance (Le Blanc & Kozar, 1990). The system must be used and exploited to achieve its intended objectives. Therefore, before moving towards adopting more sophisticated and advanced information systems; such as Enterprise Resource Planning system (ERP), Customer and Relationship Management system (CRM) and Human Resource Management system (HRM), it is important to determine SMEs current usage of existing information systems. SMEs current usage levels would be a good indicator to assess the benefits of employing a new advance system. This is because low usage of existing information system would imply that these companies are still not ready to adopt a more advance system. This situation will raises further questions on why these firms need more information when they do not even fully utilize their current information. In 2003, Ismail et al. (2003) highlighted that accounting systems adoption in Malaysian SMEs were still at the infancy stage and majority of these firms were only maintaining basic accounting systems. Nevertheless, this study had been conducted six years before and many have changed since then. Malaysian citizens' computer literacy and usage

have increases and the country's educational performances have shown significant improvement. Therefore, it is paramount to investigate whether Malaysian SMEs have matured, particularly in information system utilization. More specifically to the impact of accounting information system usage on firms' performance. Hence, the objective of this study is to provide empirical evidence on Malaysian SMEs performance after the implementation of accounting information system.

Accordingly, in section 2 is the literature review where we will discuss the common view on accounting information system and further differentiate the definition between financial accounting and management accounting. This will provide better understanding on the accounting data prepared for the purpose of complying with external requirements and data prepared to improve organizational performance. We will also discuss on previous research findings regarding SMEs usage of accounting information system and the system impact on organization's performance. Section 3 represents data collection method. A brief descriptive statistic on data that have been analyzed is also included at the end of this section. In section 4, we will provide explanation on how the panel data was analysed. Finally, in section 5 and 6, we will discuss and summarise the analysis from the results obtained.

2. Literature Review

2.1 Information System In SMEs

It is common knowledge that the main objective of a business is to maximise profit either in terms of increases in business productivity or by achieving rapid expansion in market shares domination. To achieve this goal, businesses need to be responsive to the changes in the environments, in particular to the information technology revolution. Nowadays, information technology is a must in many businesses. It is difficult to gain competitive advantage and survive without some adoption or implementation of this advancement in technological products. Studies has shown that the most widely use information system is accounting information system, specifically in financial reporting aspects (Marriot and Marriot, 2000; Riemenschneider and Mykytyn Jr, 2000; and Ismail, 2007).

Romney and Steinbart (2000) define an accounting information system as '*a system that processes data and transactions to provide users with information they need to plan, control and operate their businesses*. Here, accounting information systems are viewed as a system that helps management in planning and controlling processes by providing relevant and reliable information for decision making. It suggests that accounting information system functions are not solely for the purpose of producing financial reports. It role goes beyond this traditional perspective. Accounting information system should be utilized to include planning and managing business activities. It could also be used as a controlling mechanism such as budgeting. Therefore, full adoption of the system is essential to fully attain the system's benefits.

In general, financial accounting data has been commonly defined as information prepared for external users such as creditors, investors and suppliers. Nevertheless, its functions could also be extended to include providing managers with useful data for making informed decisions or commonly known as management accounting. Both information, financial and management accounting information come from the same sources of data; the only difference is in the way these data are presented. In management accounting, information is gathered, collate and presented in a way uniquely requested by management. This will allow managers to immediately locate the information that is useful for them. Alternatively, in financial accounting, reports are prepared in accordance to the regulators' guidelines.

Traditionally, accounting information systems have been perceived as a means of providing financial information to organization (Mia, 1993). There has been considerable evidence that within SME financial accounting has remained the principle source of information for managers (Holmes and Nichols, 1988, McMahon and Davies, 1994, Nayak and Greenfield, 1994, Mairead, 1977). These studies have also found out that SMEs are still having ineffective information management, poor system control, and most decision making is on ad hoc basis despite having adopted accounting information system. Mauldin and Ruchala (1999) reason that this situation could be attributed to the initial objectives of information technology (IT) adoption. The accounting system original role of replacing manual accounting process (Mauldin & Ruchala, 1999) has hindered further usage and exploration on the system benefits. Marriot and Marriot (2000) further concluded that financial awareness among SMEs' managers varies considerably and the use of computers for the preparation of management accounting information is not at its full potential.

However, Perrent and Grant (2000) suggested that SMEs do implement effective information and control through informal means and that decision making process can be more sophisticated than anticipated. They argued that these contradiction stems largely from the researchers' paradigm rather than any real contradiction.

In addition, Ismail and King (2005) found that some SME managers are capable of using IT strategically rather than focusing on administrative efficiency suggesting that the use of IT has expand towards management accounting context.

2.2 Information System Impact on Firms' Performance

SMEs accounting information system implementation and success have been extensively researched. Recent research development focuses on the relationship between firms strategies alignment with information system (Tan, 1996; Li and Ye, 1999). These studies suggested that there are positive relationship between strategy and strategic information technology. A study conducted by Shin (2001) discovered that IT investments will be more efficient if the systems implementation is allign with the firms' strategy. This argument is supported by Cragg et al. (2002) asserting that IT implementation which is allign with business strategy prove to have positive impact on firms' performance. In addition, Davenport (1998) highlighted the importance of having a good fit between firms' requirement and technology capabilities. The mismatch between what is needed by the firms and service offered by the new technology will yield poor performance. Nevertheless, HyvÖnen (2007) also added that sophisticated information technology aligned with ineffective performance measure will yield lower performance outcome. This raises the need for careful planning and strong justification process to be undertaken before firm reaches the decision to implement an information system.This issue is more profound within SMEs due to their limited resources and experience in IT field (Mitchell, Reid, & Smith, 2000).

Other authors (Bruque, 2007; Riemenschneider et.al, 2003) investigated factors that influence the adoption of information technology in SMEs. Both authors generally agreed that SMEs adoption of information technology were mainly influenced by the perceived benefits of implementing the systems and stems from the pressures received from competitors, customers, and suppliers to ensure business continuity and survival in the increasingly competitive environment.

Many firms invest in advanced information technology aiming at collecting more information to assist decision making performance which will eventually lead to improve efficiency and firms' profitability. Study showed that firms' that acquire extensive IT resources are able to create competitive advantage (King, 1989). Nevertheless, prior researches have difficulty providing evidence on positive relationship between IT investments and firms' performance (Mahmood & Mann, 1993; Ismail, 2007). Mixed and inclosclusive findings suggesting that a more in depth analysis is required.

3. Data

Data for this study was collected from SMEs in Klang Valley. Klang Valley was chosen since it is known as the hub of Malaysia SMEs businesses as almost 48.8% (http://www.smeinfo.com.my) of Malaysian SMEs are located in this area. In addition, the study conducted by Saleh and Ndubisi (2006), have mentioned that majority of SMEs are located in the central part of this country. Financial statement data were gathered for a five years period commencing from year 2004 to 2008. Questionnaires were sent to various SMEs industries. Financial firms such as investment firms are excluded from this sample due to the different nature of their business. Firms that have missing value for selected variables which were used in this study were also excluded from this sample. Thus, the final sample of this study comprises of 205 firm-years. In addition, limited number of response received inhibited further classification of these SMEs according to their respective industries.

Dependent variable used in this study was firm performance. Return on assets (ROA) was used as a proxy for firm performance. We measure ROA as net income over total assets. Dummy variables were used to indicate firm that had adopted accounting system (AS) and firm that did not adopt any accounting system, whereby, 1 represent firm using Accounting Information System such as UBS and MYOB; and 0 represent firm that does not adopt any Accounting Information System. Firm size and leverage were used as control variables. Natural logarithm of total assets (LNTA) was used as a proxy for firm size and debt ratio (DR) was used as a proxy for firm leverage. The measurement of debt ratio is obtained from the total debt scaled by firm's total assets equation. This study hypothesize that there is a positive relationship between the use of accounting information system and firm's performance.

Table 1 presents the descriptive statistics for the sample of this study. The average cash conversion cycle is 1.626 indicating that firm obtained RM1.626 for every RM1 invested in total asset. The average of natural log of firms' total asset is 14.698 with standard deviation is at 1.176. In addition, the result of the descriptive analysis also highlighted that in average, it is noted that 53.3% of firms' asset was financed by total debt.

4. Methodology

In achieving this study objective, panel data is more relevant because it contains the necessary mechanism to deal with both inter-temporal dynamic behaviour and the individualistic of the firms. For example, it allows

controlling for *heterogeneity bias* due to the confounding effect of time-invariant variables omitted or hidden factors from the regression model. Besides, this longitudinal approach provides additional information and richer source of variation through utilisation of a large number of data points, in which increasing the degrees of freedom and reducing the collinearity among explanatory variables, thus improving the efficiency of econometric estimators (Hsiao, 1986). All of these benefits provide stronger conclusion than findings derived from the use of static cross-sectional data or time series setting alone. This panel data estimation is more robust compared to solely time series estimation. This is because we could obtain larger sample size once we have pooled together all data across firms and time period.

4.1 Pooled OLS Estimation

This study hypothesize that the explanatory variables have a linear relationship with the firm performance. Since panel data is utilize, it does not only enables the researchers to consider both time series and cross sectional characteristic of the samples, but it also helps to identify the sources of possible mixed effects and the importance of each explanatory variables in influencing firm performance. At this initial stage, the regression model is assumed to have a constant intercept and slope coefficients. The relationship is expresses as follows:

$$Y_{it} = \alpha + X_{it}\beta + \varepsilon_{it} \tag{1}$$

for i = 1,2,......N.

  t = 1,2,......T.

where;

Y_{it} is the dependent variable (ROA) pooling N cross sectional observations

and T time series observations;

α is the intercept or constant;

vector X_{it} contains K explanatory variable for firm i in year t;

vector β contains K regression coefficients or parameters to be estimated;

ε_{it} is the error term or disturbance term and by assumptions E(ε_{it}) = 0 and Var(ε_{it}) = σ_ε^2.

With the assumption that the disturbance terms ε_{it} are independent and identically distributed and have zero means, E(ε_{it}) = 0 and constant variances Var(ε_{it}) = σ_ε^2 and all the other classical assumptions hold. Equation (1) above can be directly estimated by usual pooled OLS approach. Under such conditions, the pooled OLS would yield an unbiased, consistent and efficient or Best Linear Unbiased Estimator (BLUE) estimator of β. It should be noted that this study used the balance panel data. But for simplicity purposes, it is assumed that T is the same for all firms to keep the formula notation clear and simple. This equation can be expressed as follows:

$$ROA_{it} = \beta_0 + \beta_1 AS_{it} + \beta_2 LNTA_{it} + \beta_3 DR_{it} + \varepsilon_{it} \tag{2}$$

where

ROA_{it} = Return on assets of firms, AS_{it} = firm that use accounting system, $lnTA_{it}$ = natural log of total asset as a proxy for firm size, DR_{it} = debt ratio as a proxy for financial leverage, ε_{it} the disturbance, and β_0 is intercept. The indices *i* and *t* denote firm and time respectively.

5. Analysis of Results

Table 2 presents the pooled OLS estimates of return on assets with explanatory variables and analysis of their relationships. In addition, random effect estimated was also carried out and compared with the pooled OLS specification. At this point, we assumed a static model in level and test whether the structure of error term is adequately captured. Since, pooled data typically exhibit serial correlation, cross-sectional correlation and groupwise heteroskedasticity (Greene, 2000: 592-608), we expect to find such structural residuals.

Furthermore, Table 2 reports the coefficient and the level of significant of the explanatory variables particularly for firms that use accounting information system (AS) and also the impact of control variables which comprises of firm size (LNTA) and debt ratio (DR). Based on the random effects model, the results revealed that explanatory variables are significantly associates with firm performance with the expected sign. AS is positively related to firm performance at significant level of 5%. This provides empirical evidence that firms adopting or using accounting information system had significantly increased their firms' profitability and performance. This is consistent with Rashid, Hossain &Patrick (2001) observation that the implementation of accounting information system does improve business operation and this lead to increases in firm's performance. When

SMEs do use AS, they would be able to collect more information to assist decision making. This revealed that SMEs have the ability to create competitive advantage due to improvement in efficiency and firms' profitability.

Control variables show that firm size has a negative relationship with firm performance at significant level of 1%. This finding contradicts to previous studies' findings which indicated that firm size is supposed to increase firm performance. However, referring to García-Morales, Lloréns-Montes and Verdú-Jover (2007) study, contradictive findings of this study is largely due to large-firm management fundamental which is diverse from SMEs. This is consistent with Moen (1999) suggestion that small firms have different competitive advantages from larger firms. Therefore, conclusions drawn from previous studies on big firms or organizations listed in exchange would not be appropriate to be applied in SMEs context without empirical confirmation. Meanwhile, leverage is found to be negatively related to firm performance at 1% significance level. This explains that firms with high debt do not fully utilize (capital that acquired from debt financing) their capital towards investments opportunities thus affecting firms' performance. This commonly occurs when the profit gain is less than the cost they need to bear from debt financing such as interest expenses. This situation could be attributed to lack of expertise to effectively manage their financial resources or due to firms' limited capabilities in making a more informed investments decision. Hence, these limited resources and capabilities would eventually hurt firm's performance in achieving better profitability.

For both models and data sets, the LM test rejects the null hypothesis as the intercepts and slopes are the same across firms. Therefore, we could not use the pooled OLS estimator (Table 2) for impact of accounting system model. Hence, this implies that random effects model is more suitable than OLS model (pooled model). This is the reason why in the results discussion above, we prefer to explain the results from random effects model view. In addition, the random effects specification provides evidence that the random effects specification is preferable. In other words, the intercepts vary and the slopes are the same across firms, which indicate that every firm has their own financial decision policies.

6. Conclusion

Information system had been widely used by many corporations to automate and integrate their business operations. The main objectives of many businesses to adopt this system are to improve their organizational efficiency and increase competitiveness ability. Prior researches have shown that information system adoption does increases firm's performance and operations efficiency. In Malaysia, SMEs have been targeted as a mechanism in generating domestic-led investment to stimulate economic development, particularly after the economic crisis in 1997. Thus, it is crucial for SMEs to adopt information systems specifically AS for their business operation. This is because SMEs face competitive pressure not only from within the SMEs industries but also from the larger firms. Informed decisions would enable SMEs to improve business efficiency and remain competitive. Thus, the adoption of accounting information system could provide SMEs with the right capabilities and resources in achieving these objectives. In encouraging SMEs adoption of the information systems, Malaysian government have allocated special grants to assist SMEs to acquire these systems. Results from this study revealed that SMEs that use accounting information system do increase their firm performance. Hence, we would suggest that SMEs take the opportunity on the grants provided by government to acquire AS such as MYOB, UBS and a more advance system like ERP to make them more competitive.

References

Cragg, P. B., King, M. R., & Hussin, H. (2002). IT allignment and firm performance in small manufacturing firms. *Journal of strategic information systems*, 109-132.

Davenport, T. H. (1998). Putting the Enterprise into the Enterprise System, July/August. 121-130. *Harvard Business Review*.

El Louadi, M. (1998). The relationship among organization structure, information technology and information processing in small Canadian firms. *Canadian Journal of Administrative Sciences*, *15* (2), 180-199.

Elliot, R. K. (1992). The third wave breaks on the shores of accounting. *Accounting Horizons, 6* (2), 61-85.

Fisher, B., & Kenny, R. (2000). Introducing a business information system into an engineering company. *Journal of Information, Knowledge and Systems Management*, *2*, 207-221.

Foong, S.Y. (1999), Effect of end user personal and systems attributes on computer-based information system success in Malaysian SMEs, *Journal of Small Business Management*, July, pp 81-87.

García-Morales, V.J., Lloréns-Montesand, F.J., Verdú-Jover, A.J. (2007). Influence of personal mastery on organizational performance through organizational learning and innovation in large firms and SMEs. *Technovation,* 27(9), 547-568.

Gupta, U.G. and Capen, M. (1996). Techniques, An empirical investigation of the contribution of IS to manufacturing productivity, *Information and Management*, 31, pp 227-233.

HyvÖnen, J. (2007). Strategy, Performance measurement techniques and information technology of the firm and their links to organizational performance, *Management Accounting Research*, 18, pp 343-366.

Ismail, N. A. (2007). The impact of information technology on performance: The mediating role of management accounting systems. *Jurnal Teknologi , 46* (E), 27-44.

Ismail, N. A., Abdullah, A. N., & Tayib, M. (2003). Computer-based accounting systems: the case of manufacturing-based small and medium enterprises in the Northern Region of Peninsular Malaysia. *Jurnal Teknologi , 39* (E), 19-36.

King, W. R. (1989). Using information and Information Technology for Sustainable Competitive Advantage: Some Empirical Evidence. *Information and Management , 17*, 87-93.

Kinney, W.R. (2000). *Information Quality Assurance and Internal Control for Management Decision Making,* Boston: Irwin/McGraw Hill.

Li, M. and Ye, L. (1999). Information technology and firm performance: Linking with environmental, strategic and managerial context, *Information Management*, 35, pp 43-52.

Mahmood, M. A., & Mann, G. J. (1993). Impact of information technology investment: An empirical assessment. *Accounting, Management & Infomation Technology , 3* (1), 23-32.

Marriot, N and Marriot, P (2000). Professional accountants and the development of a management accounting service for the small firm: barriers and possibilities, *Management accounting research*, 11, pp 475-492.

Mia L. (1993). The Role of MAS information in organisations: An empirical study. *Br Account Rev*; 25: 269-285.

Mitchell, R., Reid, G. & Smith, J. (2000). *Information system developement in the small firm.* United Kingdom: CIMA Publishing.

Moen, O. (1999). The Relationship Between Firm Size, Competitive Advantages and Export Performance Revisited. *International Small Business Journal*, 18(1), 53-72.

Porter, M. E. (1980). *Competitive Strategy: Techniques for analyzing industries and competitors.* New York: The Free Press.

Rashid, M., Hossain, L., and Patrick, J. (2001). The Evolution of ERP Systems: A Historical Perspective. In L. Hossain, J. Patrick, & M. Rashid, *Enterprise Resource Planning: Global Opportunities & Challenges* (pp. 1-16). United States of America: Idea Group Publishing.

Riemenschneider, C. K. and Mykytyn Jr, P. P. (2000). What small business executives have learned about managing information technology, *Information and Management*, 37, pp 257-269.

Romney, M. B. and Steinbart, P. J. (2000). *Accounting Information Systems* (8th Edition), Reading, MA: Addison-Wesley.

Sharman, P. A. (2003). The case for Management Accounting, Strategic Finance.

Shin, N. (2001). The impact of Information Technology on Financial Performance: The importance of Strategic Choice. *European Journal of Information Systems* , 227-236.

Tan, R.R. (1996). Information technology and perceived competitive advantage: an empirical study of engineering consulting firms in Taiwan, *Construction Management Economics*. 14, pp 227-240.

Vaasen, E.H.J. (2002). *Accounting Information Systems, A Managerial Approach,* John Wiley & Sons Ltd.

Table 1. Descriptive Statistic

	ROA	AS	LNTA	DR
Mean	1.626	0.439	14.698	0.533
Std dev.	1.565	0.497	1.176	0.335

Table 2. Regression Analysis of Impact of Accounting System

Explanatory variable	Pooled OLS	Random Effects
AS	0.794***	1.024**
	(0.001)	(0.017)
LNTA	-0.528***	-0.892***
	(0.000)	(0.00)
DR	-0.438***	-0.743***
	(0.000)	(0.000)
Constant	9.009***	14.397***
	(0.000)	(0.000)
LM test	0.0000	

Notes: ***Significant at 1 %, **Significant at 5 %, Parentheses are *p*-values.

Paradigms Found: Phronesis and Pragmatic Humanism for International and Domestic NGOs

Douglas K. Peterson, PhD

Business without Borders, the NGO/NPO Institute, Incorporated

6101 34th St. West, Suite 4H, Bradenton, Florida 34210

Tel: 1-941-567-4121 E-mail:Peterson@business-without-borders.org

Abstract

In the theory surrounding the management of non-governmental organizations (NGOs) there seems to be a lack of what Aristotle would call *sophia*, *phronesis*, and *eudaimonia* (as found in the *Nicomachian Ethics*). In plain terms, these are the wisdom, practicality and desired outcomes for theory and practice as evidenced by the lack of a coherent structure, *or set of paradigms*, for structuring wisdom and offering the explanation of phenomena as well as prediction of why or when those phenomena will happen. This paper is on the development of paradigms related to the understanding and management of international NGOs and their population, management and membership. The intention of paper is upon structuring arguments from *interpretive*, *radical structuralist*, *radical humanist* and *functionalist* paradigms into a *pragmatic humanism* that hasn't been introduced in the management, NGO, or public administration literature.

Keywords: Management, International NGO, Pragmatic Humanism, Paradigm Development, Phrone**sis**

1. Introduction

In the public administration and management literature there's not a great deal on the development of paradigmatic pragmatic wisdom and practical outcomes that is of direct use in our understanding of the rise of the non-governmental organization (NGO) and the lack of trust in governments and corporations as places to work. This paper is on the management of non-governmental organizations, or NGOs, whose organizational purpose and definition is to enact a domestic or international social movement that government or business institutions have not enacted (Teegen, Doh, and Vachani, 2004). Further, growing lack of trust of business and governmental organizations brings the salience of the NGO into view. Currently, NGOs are more integrated, organized, and influential in the global environment than ever before and academics need some direction in explaining their actions, predicting their behavior and offering pragmatic wisdom, or a *phronesis*, for future academic theory and practical action. This paper attempts to thoroughly explore the concepts of paradigm development while building the concept of practical humanism onto Burrell and Morgan's (1979) orthogonal representation of structuralism, functionalism, radical humanism and radical structuralism. There is nothing like this paper in the management or NGO-related literature, so to that end, it is completely original.

2. Paradigms

Thomas Kuhn (1970), in *The Structure of Scientific Revolutions* explains the development of dominant paradigms within academic fields. In it, a field looks to be in a situation that Kuhn (1970) would call "*pre-paradigmatic*" when there is little agreement on major research themes, methods, training or even quality assurance. In other words, this is the place in which a field of understanding exists before the creation of *"normal science"* where methods, understanding of direction in the field, training and production efforts are not yet agreed upon. Were they in agreement, it would lead to the state of which would signify "*normal science*" where a lack of understanding or agreement is called "*abnormal science*". Conceptually, the philosophical move from abnormal science to normal science requires time and growing disharmony. An area of endeavor is not immune to the movement from normal science to abnormal science depending upon practical constructions, agreement in the field, and the social structure in control of a preponderance of agendas. This oscillation often occurs in a timeframe of years, the examples being the development of stability in chemistry, mathematics, and physics which all used centuries to establish "normal science". As young fields, management – or even public administration – has yet to thoroughly establish paradigmatic agreement that establishes them as a profession where there is an agreed curriculum and training that resembles a pragmatic residency.

In pragmatic and academic terms, the management disciplines do have their dominant paradigms, none of which are without criticism and the oscillation from empiricism to structuralism, contingency, operations research, processualism, or multi-trait and multi method research which indicates this field is still trying to find its roots. One criticism is that while they management research produces useful knowledge and understanding, it is are responsible for helping to limit training, research foci, and priorities within the field (Kuhn, 1970; Pfeffer, 1993; Hassard and

Parker, 1993). They are not included in the mainstream, however if they come to the mainstream, decisions about how long they exist come naturally as agendas change. One argument is this has the effect of creating limits on discourse where one might argue that the use of one or a small number of paradigms produces a view that neglects a multidisciplinary and multifaceted nature of organizational understanding. This produces a *Kuhnian crisis* of faux incommensurability that prohibits theoretical advancement and combination of work (Dando and Bennett, 1981). This creates the need to trim the garden of general understandings while also creating the need for dialogue between factions or dominant players.

This particular work is also about the way we understand research and phenomenology as it relates to the work and the rise of the NGO. In this paper's opinion there is not enough research on the NGO, the people who work there and the operational details of the entities. We understand NGOs and we see they operate effectively in most cases. What is needed is the basic research and the cases that help us to train NGO managers while creating theory that explains, predicts and controls the phenomenology surrounding the organization and allowing for the contribution to the practical success of these organizations. Also, there is not enough literature, perhaps a few dozen articles on academic or pragmatic topics, and we could use more. To characterize the literature, most NGO material presents area studies, like NGOs in Africa or Asia; policy advice (Kim, 2009; Yarrow, 2008; Guinn, 2008); and managerial direction based largely on organization direction and policy (Uvjn and Jain, 2000). There are also some adventures into foundation money and how to get it (Fowler, 2008).

In paradigm research for the NGO we have a relatively new field of inquiry. It is a new and even virtual organizational form. We need to understand the population of NGOs and how it changes; the management of NGOs and how it is different and how it is the same as management in the organizational literature; and finally we need to understand the membership of NGOs and why people volunteer their time or work for them as opposed to a potentially more lucrative choice. This population, membership and management (PMM) is a very large portion of the research agenda being created. There are new understandings for funding bases and continuing disagreement as to whether our understandings should be policy oriented or more practically placed into management, operations, government, or supra-governmental organizations (like the UN). By placing NGO research into the policy oriented literature we generally use only some of our understanding; we can introduce more in the effort to explain, predict, and control this phenomenology.

Existing paradigms in management, the social sciences, and the humanities may not adequately explain the practical phenomenology and wisdom of the NGO and its operations. We can perhaps overcome the limitation of additional discourse by examining other thought patterns that may shed light on matters of governance and commensurability of working with business organizations effectively. We can then open the field more broadly to scholars, teachers, students, and practitioners who would provide creativity in their work inside or outside of a main stream.

In the presentation of this paper, pragmatic humanism will be compared with alternatives ranging from radical humanism, radical structuralism, functionalism, and interpretive patterns. This allows for better and more productive partnerships between human service missions while enhancing the mutual understanding between business and NGO organizations. Gioia cleverly coined the term "*paradigm lost*" (1993), you might call this paper a "*paradigm found*". It provides the *sophia* (wisdom), the *eudaimonia* (desired end) and the *phronesis* (practical wisdom) of discourse from which to address the critical issues facing NGOs. For reference, *Sophia, eudaimonia and phronesis* are from Aristotle's *Nicomachean Ethics*.

3. Pragmatic Humanism

Pragmatic humanism gives persons, and in this case managers, professionals, or NGO workers or managers the means to be active agents in the construction of their own existence. The meaning of this statement is that there is an epistemological dominance or nature of organizational and governmental development in management surrounding person's work. Let us explore that epistemology and see if we can develop our understanding of the *pragmatic humanism* in Faucault (1997), or Reynolds (2004).

As previously mentioned, the nature of *normal science* is where an academic discipline agrees on methods, training, subjects, and approaches to prescribed problems of interest. In short, *everyone should be on the same page*. There is a pragmatic enforcement of anthropological normal science through the norms, mores and folkways that establish that mechanism. An example can be the norm for picking member of boards of directors/advisors in corporations and governmental organizations. This is done through an epistemological structure and has the effect of keeping organization and organization structure and practice within the concept of normal science. This epistemological framework, one that governs through rules and through institutions purports to admire and support freedom, however in reality it acts as a "psychic prison" or "iron cage" from which normal science is maintained.

Pragmatic humanism somewhat is difficult to approach so it's best to split the concept into the pragmatism of

Faucault (1997) and the humanism of both Dewey (1931) and Faucault (1997). According to the pragmatic humanism of Faucault (1997) there is a struggle against the epistemological along which power is said to be formed. In response, people productively engage in practices of self invention as positive forms of resistance and take refuge in the language of an embodied, political and ultimately pragmatic humanism. Also, there exists a citizenship that has its rights and its duties and which holds an obligation to speak out against abuses of power. In appropriating these themes, this earlier Foucault would say we can no longer think in terms of the rational progress of humanity and can no longer longer subject to the epistemological tyranny with their arbitrary insistence on the primacy of practices residing in a *finite cognito*. Humanism is reconfigured as an Enlightenment driven desire to realize both individual freedom and the freedom of others and as such seeks the freedom of the epistemological (perhaps through joining or starting an NGO) without buying into the modern mode of subordination. Faucault's (1997) plurality of values are designed to recapture, reconstruct and reinterpret past forms of human experience in order to better understand the present, pragmatic understanding of subjective constitution. This is rooted in everyday experience and takes place in the will to self invention, creativity, and transformation. Call it a new way of refusing to be what we are.

This pragmatic behavior is an affirmation of a new type of freedom, one which leaves behind the Cartesian ego as the foundation of all knowledge and replenishes human activity with a sense of non-discursive and practical creativity. Finding meaningful, purposeful experience based on practical and intellectual beliefs. The act of knowing is caught up in the quest for certainty. This opens the person who would seek freedom in a different type of employment, like the NGO, to seek continuous inquiry into the forces that have constituted us as subjects so that one day, we will look back and see the arbitrariness of scientific and humanist conceptions, placing primacy on experiential rather than epistemological foundations. We self-create through everyday practices and employ a pragmatic approach to our self existence. We must define the objects, rules of action, and odes of relation to ourselves if we are to analyze questions of general import. This is how a subject gets through to the pragmatic dimension. The Greeks would have called this *epmemeia heautou*, which is a term meaning the attainment of knowledge about oneself through thought and through practical experience. The connection to the late modern era rests on hope for subjects who are no longer passive dupes in the humanist regimes for power and knowledge but are attributed a degree of creativity within such regimes. The self is first and foremost a product of social life and the choice for occupation rests not in organizational society, but in the self will. Alliances shift in order from *organization – profession – person* to *person – profession - organization*. The point is to free on-oneself from power relations by acting ethically, by respecting one-self and acting in concert with others so as to maximize freedom. It is Faucault's (1997) view that when practices of individual freedom and collective liberation make themselves apparent can there be an opening up of the possibilities to pave the way for rationality and this freedom requires a certain degree of liberation to pave the way for new power relationships which must be controlled by the practices of freedom. To use William White's *Organization Man* (1938) one must think – what percentage of people were organizationally loyal twenty years' ago and what percentage has that attribute now?

4. Viewpoints

Let's look at some other viewpoints. Consider critical theory. Paradigms can be developed that can yield meaningful insights into phenomena not previously realized while combining them with existing paradigms in our quest for newer and better understanding. Recent efforts to create multi-paradigmatic approaches have proven interesting, and have caught some attention and created challenging viewpoints that can be useful beyond Faucault's view (Faucault, 1997; Wilber 1982; Hassard, 1988, 1993; Pfeffer, 1993; Van Maanan, 1994; Weaver and Gioia, 1994; Gioia, 1999; and Lynham, 2000). For instance, Wilber (1982) in "Physics, Mysticism, and the New Holographic Paradigm", characterizes organizations as holographic processes of transparency and the management of these organizations as taking place from all directions. This was an attempt to commensurate organizational paradigms to a holographic process. In response, Hassard and Parker (1993, 1998) called for multiparadigm research instead of Wilber's one holographic paradigm. Hassard is invoking an epistemological debate about whether it is possible to translate the meaning of one technical language (like physics) into another given that major theoretical paradigms are incommensurable.

Meaning given to the term "methodology" in social theory and management has its emphasis on procedures for gaining knowledge and on the scientist's identification and justification of findings. In management, the emphasis is on systematically understanding, predicting, and changing variables in the world with the ultimate aim being to promote the survival and growth of those organizations that through their output have distinctive competencies, compared to other organizations, in producing outputs that serve society. One might argue that management uses functionalist approaches to intervene in business enterprises in order to provide direction, competitive advantage, and

competitive success, while operating in a logical or strategic direction. While these emphases can be criticized as one sided and misleading for their short sidedness, it could be held that these fields offer a great deal more understanding through strategic, political or cultural levels, however meanings ascribed to the idea of methodology in the social sciences and in management, particularly in the management of NGO type organizations, seem to be rather fuzzy given the current paradigms available. Methodology in the social sciences usually refers to the procedures used by a theorist in seeking to find out about social reality. In describing a particular methodology, reference will be made to theoretical assumptions adopted in that methodology. For example, one could describe the steps in social methodology and the theory underneath. In management, "methodology" is used to refer to methods for exploring and gaining knowledge about strategic content and process issues. Because management has a practical orientation, a normal usage for the word "methodology" is to describe the organized set of methods a theorist employs either to intervene in a real world strategic problem, or to pursue some course of study in the lab or in the field.

The two ways in which "methodology" are used in the social sciences and in *NGO population, membership and management (PMM)* suggest a different emphasis that is not entirely incommensurable. Surely there can be pragmatic application of an academic natural world and practical application to charitable human endeavors. The emphasis may be more on a pragmatic application in NGO PMM although there are similar theoretic applications in both the social sciences and NGO PMM that may cause one to think there is room for commensuration. The social sciences are strong on theory, they are strong on asking definitional questions, and they are strong on delving into the philosophies and assumptions of theorists in a desire to push the edge of knowledge, but not necessarily application of material. As an applied field, informed management asks questions regarding how to apply knowledge while teaching businesses, and by extension, NGOs how to achieve advantage and superior productivity. In NGO PMM, it is obvious that theoretical suppositions guide methodology to be used for intervention in business situations. Social science rarely, outside of the practical world, makes an effort to intervene in social reality in an effort to change it. Business scholars are dedicated to practice, but do not have well developed paradigms and theory. Any attempts to change the world rest upon created theoretical arguments about the nature of the world. In not having well created background for intervention, the strategic theorist will not take full advantage of opportunities to develop paradigms and learn from practice in order to develop the theoretical discipline.

There is potential for immense collaboration between social theory and management research in NGOs. Both fields can stand to gain if they can learn to think in terms of a complex and systematic view of methodology, and to strive to understand the complex meanings of social science and operations. What must happen here, is the creation of a set of theoretically grounded suppositions, followed by ability to intervene and plan.

5. Paradigm Considerations

Social science theory can help NGO PMM methods to be explored at a number of levels. At one level is the sociological orientation of Burrell and Morgan (1979) and the potential impact on NGO research and management theory. At an organizational level, Burrell and Morgan present key metaphors to steer the way researchers study and address questions of academic or practical importance. Finally, the issues of modernism and postmodernism are addressed.

5.1 Knowledge and interest in social evolution

As transient organizations (Yanacopoulos, 1998), NGOs are likely to require the technical and practical interest with a humanistic mission, where practicality takes on a new and more humanistic form.

For NGO PMM scholars seeking to intervene in organizations and social entities, organizations have subsystems that are concerned with production and with "steering" organizational direction. Management methods will be needed to be grounded in all three interests for their functioning. They might usefully be classified according to whether they can guide instrumental action oriented to the development of production, development of steering capacity, or communication action interested in the creation of understanding free from domination. From a critical perspective, it is important to check that NGO PMM methodologies support the technical interest, and are reflective in their own limitation, recognizing the proper sphere of applicability. Methods that serve the practical interest, and facilitate debate about purpose must attend to the possibility that systematically distorted communication may jeopardize the emergence of shared purpose and direction.

5.2 Sociological paradigms and NGO PMM

Many management theories really do resemble social theories, although many are drawn from the social sciences. They attempt to create principles of method for strategic researchers to follow when they seek to learn about and intervene. Principles we adopt for intervention must contain assumptions about how we can and should learn about reality and about the nature of that reality. This is true whether that reality is stated explicitly or whether it remains covert. One "useful" working tool that can enable us to unearth NGO PMM methodologies may be Burrell and

Morgan's (1979) sociological paradigms for organizations. Within the framework, in Figure 1, the four paradigms are labeled "functionalist", "interpretive", "radical humanist" or "radical structuralism". Our concept of "Pragmatic Humanism" (Reynolds, 2004; Faucault, 1997; Rorty, 1989; 1999; Shusterman, 2001) is added on top to highlight the idea of individual action on top of epistemological structures, representing the desire for self determination, which is one basic reason for NGO PMM. Please see Figure 1.

5.3 Interpretivism

The interpretive paradigm, is based upon the view that the social world has a very precarious status, and that what passes as social reality does not exist in any concrete sense, but is the product of the subjective experience of individuals. Society is understood from the standpoint of the participant in action and the theorist attempts to understand the process through which shared realities arise and are sustained. Like the functionalist, the interpretive approach is based on the assumption and belief that there is an underlying pattern and order within the social world and the interpretive theorist views the functionalist's attempt to establish an objective social science as a desired end. Common viewpoints in interpretivism are that management and NGO PMM is a Hermeneutic game with ethnomethodology and interactionism.

5.4 Radical Humanism

The radical humanist paradigm, like the interpretive paradigm, emphasizes how reality is socially created and sustained but ties analysis to an interest in what may be described as the pathology of consciousness. Here, people become members of an habitual domain that lies within the bounds of the reality they create. This perspective is based on the view that the reality creation is influenced by psychic and social processes which channel, constrain, and control the minds of human beings, in ways which tie them only to their created interests. Capitalism, for example, is viewed as essentially totalitarian, the idea of capital accumulation molding the nature of work, technology, rationality, logic, science, roles, language and mystifying ideological concepts such as work, leisure. These concepts, which the functionalist theorist may regard as the building blocks of social order and human freedom stand, for the radical humanist, as modes of ideological dogma. Common viewpoints of radical humanism in NGO PMM and management are that it organizations are a psychic prison. This is the closest to our viewpoint of pragmatic humanism, however radical humanism operates within organizations and not extraorganizationally per se (Aktouf, 1990, 1992).

5.5 Radical Structuralism

The reality defined by the radical structuralist paradigm is predicated upon a view of society as a potentially dominating force. However, it is tied to a materialist conception of the social world, which is defined by hard, concrete, real structures. Reality is seen as existing on its own account independently of the way in which it is perceived and reaffirmed by people in everyday activities. Emphasis is placed upon the importance of praxis as a means of transcending this domination. Each of these four paradigms defines the grounds of opposing modes of social analysis and has radically different implications for the study of organizations. Here organizations are instruments of domination and schismatic.

5.6 Functionalism

The functionalist sector is based upon the assumption that society has a systematic character oriented to produce an ordered and regulated state of affairs. It encourages an approach to management that focuses upon understanding the role of everything in operations. For instance, persons' behavior is always seen as being contextually bound in a world of concrete and tangible social relationships. This encourages the Weberian belief in the possibility of an objective and value-free operation in which an organization, like an NGO, is distanced from the scene being addressed (Ritchie, 1994). This perspective is primarily regulative and pragmatic in its basic orientation, concerned with understanding society in a way which generates strategic decisions in a rational world. Finally, the functionalist paradigm sees organization as social systems, machines, cybernetic systems, organisms, cultures, and bound to determinism, pluralism, and an action frame of reference. This is the opposite of what radical humanism and pragmatic humanism would describe (Demerath, 1996).

6. Paradigm Collaboration

It should be obvious that our understanding of NGO PMM has a great deal to gain from collaboration and awareness of social theory. While arguments have been made to enfold economics into management, perhaps a more interesting "friend" can be found in the social sciences. Considerable insight can be found from delving into individual methodologies. Similar analyses can be performed on any paradigm or economic methodology, like transaction costs analysis, or agency theory. Just as Jackson (1993) has done for all strains of "enhanced" operations analysis, a scholar in Images of Organization could do the same for Modernism. The traditional approach to NGO interests serves the

technical interest, is based upon functionalism, gives credence to the various metaphors, and is systemic modernist in orientation.

Social theory can bring increased understanding to individual methodology. Social theory has much to offer management as a field. The main points that could be made can be summarized as:

1) Support for complementarism between management of NGOs and their environments.
2) Support for methodology choice in the muddled field.
3) Enabling NGO PMM to be taught in the appropriate discipline, which this paper would argue is a hybridized for of public or non-profit management.
4) Improving the methodologies and techniques available from policy oriented material to more functional choices.

Different philosophical and sociological assumptions relied upon by the various approach serves different objectives. The question: are they a complementary set or are they in conflict in some way is an important one. The argument that management is within a paradigm crisis in which a variety of approaches opposed on fundamental matters concerning the nature and purposes of a discipline compete with one another has been put forward by Pfeffer (1993) and by Dando and Bennett (1982). It rests on the notion of Paradigm incommensurability, favored by Kuhn (1970); by Dando and Bennett (1982); by Pfeffer (1993); and by Burrell and Morgan (1979). Instead of setting up different strands of NGO PMM as competing for the same area of concern, alternative approaches can be presented as being appropriate to the different types of situation in which strategic managers are required to act. Each approach will be useful in certain defined areas and should be used in the circumstances where it works best. If this perspective is adopted, then the diversity of approaches heralds not a crisis, but increased competence and effectiveness in a variety of situations, especially in terms of academic field legitimacy. Once complementarism is accepted, rather than one paradigm over another, then the kind of analysis of strategic managers makes it possible to determine the relative strengths and weaknesses of differing approaches.

The understanding of the presuppositions of different managerial approaches makes it possible to use theory from the social sciences to help with important questions being faced by researchers interested in this organizational for. This question is which theories are best? It becomes possible to ask whether the assumptions made can be identified in the world, and whether their objectives are agreed upon by all participants. The social consequences of using a particular strategic methodology are opened by social theory.

It is well known there are problems of understanding NGO PMM both domestic to North America as well as in more international climates. Managerial approaches should not be regarded as fixed in stone; they develop over time in response to theoretical and methodological innovation and as a result of reflection on practice. No doubt the field could benefit from refinements which could be made by viewing them from a social theory perspective. The assumptions each makes are also tested out in every intervention, in the "real world". Considering interventions in the light of extra knowledge that social theory can bring, should be beneficial.

7. Conclusions and Extensions

The matter of NGO PMM and social sciences theory benefitting NGO PMM and NGO PMM fitting social science theory is considered in this paper. It is the opinion in this paper that the images of functionalism and modernism should be replaced not by radical humanism or structuralism, but by a practical humanism that views the human being as central to the effort and should be considered in light of the existing theory but also in light of the concept of practicality with notation to the efforts and needs of humans in the endeavor (Eisenhardt, 1991). This may be the reason so many people are leaving the corporate and academic world for the human service of the NGO. The psychological rewards are better as are the outcomes and flexibility in conceptualizing the structure and patterns of work in functionalist as well as humanistic terms. In this regard, the relevance of social theory courses could be made more explicit. We might say that with the consideration of the paradigms in the images of organization and the modernism debate, permutated into the practical humanism we espouse the prize to offer NGO managers social scientists and management practitioners is in the understanding, and prediction of operational success. Call it a Paradigm found. The phronesis, or practical reason that is informed by multi-paradigm consideration gives us an insight in operations, but also into the human conditions that make this type of organizational form work.

References

Aktouf, O. (1992). Management and theories of organizations in the 1990s: Toward a critical radical humanism. *Academy of Management Review, 18:3 (July, 1992), p. 407-431.*

Aktouf, O. (1996). *Traditional Management and Beyond.* (Montreal: Morin).

Burrell, G. and Morgan, G. (1979). *Sociological Paradigms and Organizational Analysis.* (London: Heinemann).

Dando, M.R., and Bennett P.G., (1981). A Kuhnian crisis in management science? *The Journal of the Operational*

Research Society, 32:2 p. 91-103.

Demerath, N.J. (1996). Who Now Debates Functionalism? From "System, Change and Conflict" to "Culture, Choice, and Praxis *Sociological Forum*, 11:2 p. 333-345.

Eisenhardt, K. (1991). Better stories and better constructs: The case for rigor and comparative logic. *The Academy of Management Review, 16:3 p. 620 – 627.*

Fowler, A. (1992). Distant Obligations: Speculations on NGO Funding and the Global Market.
Review of African Political Economy, No. 55, p. 9-29.

Gioia, D. (1999). Gioia's reply to Jones and Wicks. *The Academy of Management Review, 24:4 p. 624 – 625.*

Gioia, D. (1999). Response: Practicability, paradigms, and problems in stakeholder theorizing. *The Academy of Management Review, 24:2 p.228 – 232.*

Gioia, D., M Schultz, K. Corley. (2000). Organizational identity, image, and adaptive instability. *The Academy of Management Review, 25:1 p. 63 – 81.*

Guinn, D.E. (2008). Defining the Problem of Trafficking: The Interplay of US Law, Donor, and NGO Engagement and the Local Context in Latin America. *Human Rights Quarterly*, 30:1 p. 119-145.

Hassard, J., and Holliday, R. (1998). *Organization-representation: Work and organization in popular culture.* (1000 Oaks, CA: Sage Publications).

Hassard, J. and M. Parker. (1993). *Postmodernism and Organizations.* (London: Sage).

Kim, E. (2009). The Limits of NGO-Government Relations in South Korea.

Asian Survey, 49:5 p. 873-894.

Kuhn. (1970). *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press).

Pfeffer, J. (1993) Barriers to the advance of organizational science: Paradigm development as a dependent variable. *Academy of Management Review, 18:4, p. 599-620.*

Lynham, S.A. (2000). Theory building in the human resource development profession. *Human resource Development Quarterly, 11:2 p.159-169.*

Lyotard, J.F. (1984) .*The Postmodern Condition.* (Minneapolis: The University of Minneapolis Press).

Morgan, G. (1980). Paradigms, metaphors, and puzzle solving in organizational theory. *Administrative Science Quarterly, 25:4 p. 605-622.*

Morgan G. (1983) More on metaphor: Why we cannot control tropes in administrative science. *Administrative Science Quarterly,* 28:4 (Dec., 1983) pp. 601-607.

Reynolds, J.M. (2004). Pragmatic Humanism in Foucault's later work. Canadian Journal of Political Science / Revue Canadienne de science politique. 37:4 p. 951 – 977.

Ritchie, C. (1995). Coordinate? Cooperate? Harmonise? NGO Policy and Operational Coalitions. *Third World Quarterly*, Vol. 16, No. 3, p. 513-524.

Rorty, R. (1989). *Contingency, Irony, and Solidarity* (Cambridge: Cambridge University Press).

Rorty, R. (1999). *Hope in Place of Knowledge: A Version of Pragmatism* (Cambridge: Cambridge University Press).

Teegen, H., Doh, J. and Vachani, S. (2004). The importance of nongovernmental organizations in global governance and value creation: An international business research agenda. *Journal of International Business*

Thomas, J.T., S. Clark, D. Gioia. (1993). Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes. *The Academy of Management Journal, 36:2 p. 239 – 270.*

Uvjn, P., Jain, P., and Brown, D. (2000). Think large and act small: Toward a new pardadigm for NGO scaling up. *World Development* 2000.

Wilber, K. (ed). (1982). *The Holographic Paradigm and Other Paradoxes.* (Boulder, Co.: Shambhala).

Williamson, O. (1998) .Transaction cost economics: how it works; and where it is headed. *De Economist, 146:1 p. 23 – 58.*

Yanacopulos, H. (2005). The strategies that bind: NGO coalitions and their influence. *Global Networks* (Cambridge: Cambridge University Press).

Vol 5, p.193 - 200.

Yarrow, T. (2008). "Life/History: Personal Narratives of Development Amongst Ngo Workers and Activists in Ghana." *Africa: Journal of the International African Institute*, Vol. 78, No. 3 (2008), pp. 334-358.

SUBJECTIVE   **THE SOCIOLOGY OF RADICAL CHANGE**   **OBJECTIVE**

RADICAL HUMANISM

(Radical change throwing off the bounds of exploitation.)

RADICAL STRUCTURALISM

(Structural change in society to free humankind.)

PRAGMATIC HUMANISM

(Worth of each person to self determine according to own best interests.)

(Contingent management of situations.)

INTERPRETIVE

(Rationality, planning, data, and management according to strategy.)

FUNCTIONALIST

THE SOCIOLOGY OF REGULATION

Figure 1.

Appliance of Value Engineering on the Improvement of Headstock Gear

Zhang-wei Li

College of Economic Administration, Sichuan Agricultural University

Ya'an, 625014, China

E-mail: mrlizhangwei@hotmail.com

Xun-gang Zheng (Corresponding author)

College of Economic Administration, Sichuan Agricultural University

Ya'an, 625014, China

E-mail: zxg9@163.com

Abstract

Based on the value engineering analysis, this article calculates the value coefficient of the headstock gear by defining the cost coefficient and functional coefficient, whose result shows that the lower cover and screw stem are the main objects to be improved, therefore, puts forward proposals to the improvement of lower cover and screw stem and finally evaluates the improving program whose result suggests improving program has a good effect.

Keywords: Value engineering, Headstock gear, Product improvement

1. Introduction

The ultimate goal of the enterprise is to continue business operations and gain profit, on the one hand, manufacturing technique of the society is continuously updated, only reach social necessary labor time, can the enterprise gain average profit of the industry and continue business operations, on the other hand   in order to stand out from the fierce market economy, enterprise must reduce costs and raise efficiency to gain excess profit. In addition, reduction of consumption caused by global financial crisis and the rise of the raw material prices make enterprises of China, especially small and medium-sized enterprise face greater difficulties which ask for the improvement of the products and reduction of the costs. Howerer, in China, many enterprises did not do the scientific analysis for their products, which not only made the improved results poor, but also resulted in a waste of resources.

The main purpose of this article is to find out the improved order of the headstock gear through calculating the functional coefficient, cost coefficient and vale coefficient using Value Engineering method, then put forward proposals to the improvement of lower cover and screw stem, and finally evaluates the improving program.

Lawrence D. Miles estabilished the Value Engineering in the monograph of "Techniques of Value Analysis and Engineering" in 1947. In the monograph he pointed out that success of a free enterprise in the overall long-term competition lay in continuously selling the best value to customers and evoking expected price, and the best value is function and cost. Using Value Engineering can help all the departments of a enterprise to determine the best scheme that meets all the needs of the customers with the lowest cost. In general, 15% to 20% or more of the unnecessary costs can be reduced within reducing the value of consumers. Since 1978, the theroy of Value Engineering was introduced into China, it has been widely adopted by many companies and made great economic benefits.

With 30 years' practice, the theory and methodology of Value Engineering has been recognized by the academic community, especially the business circles, which has been one of the significant methods to improve product quality, reduce product cost and increase economic efficiency.

Research on the influence of technical innovation on business management: LIU Lie-wei(2010) pointed out that the minor enterprises in China have low level of technology and innovation ability, they should set up a corporate culture of innovation core value and mechanism of innovation incentive. XU Wen-sheng(1999) pointed out that the influence of technological innovation to business management mainly lies on manufacturing activities and the main purpose is to reduce the cost, improve the yield and quality, supply material base for enterprises to maintain and enhance competitive strength.

Meanwhile, many scholars in China have done lots of fruitful work to the application of improving product using scientific theories and methods of Value Engineering.

(1) Research on the basic analysis steps of Value Engineering: Zhou Shu-ling (2008) showed that there are 5 steps in Value Engineering Analysis to choose the best scheme as the successful bidder. The steps are determining the object of Value Engineering and doing functional analysis, calculating the functional coefficient, calculating the cost coefficient, calculating the value coefficient and evaluating the scheme, and ordering the value of the scheme. And in the step of determing the object of Value Engineering, we can use FD method, Multi-scale score method, DARE method, Logical flow score method, and AHP method.

(2) Research on the effects of Value Engineering: Ren Jie, Zhang Xiao-hua (2008) showed that Value Engineering can increase economic efficiency value, help to improve enterprise management level, promote combination of technical and economic, soft technology and hard technology.

The researches of the headstock gear have also been done by many scholars, which mainly place extra emphasis on the disadvantage and the improvement of the headstock gear.

(1) Research on the disadvantage of the headstock gear: Li Zhi-rong, Xue Song et al. (2009) showed that the disadvantages of the headstock gear are that screw is easy to bend and fractured, bushing is easy to fret, screw glissades automatically.

(2) Research on the improvement of the headstock gear: Yang Lin, Ren Shang-hua (2009) showed that we can add a screw set in the screw cover to prevent it from bending and set anti-theft feature, meanwhile the body of the headstock gear can be made of the steel to prevent the disadvantage of rust-eaten. The price of headstock gear improved can be reduced by 25% to 320 yuan per contignation. Yang Dao-fu (2008) showed that we can add a special draw-in gear in the operating arm to set the anti-theft feature. The fundamentals of the anti-theft feature are to ensure screw stem is closed and not exposed in the process of opening and closing the water gate when using special tools.

To sum up, scholars in and out of the country all agree on the point that Value Engineering is a directive significance way to the improvement of the products' cost and function, and there are some disadvantages of the headstock gear. Though there are researches on the improvement of the headstock gear, they put emphasis on the producing technology and have not do a comprehensive analysis on the value, cost and function. This article solves the disadvantage above based on the theory of Value Engineering and has strong practical significance.

2. Theory of Value Engineering

Value Engineering is a technical and economic method which studies on how to achive the necessary function with the lowest cost. The main idea of Value Engineering is to enhance the value of the object through analyzing the function and the cost of the object, the core is to analyze the function.

The formula of calculating the value is $V = \dfrac{F}{C}$

V stands for value coefficient, F stands for functional coefficient, and C stands for cost coefficient.

In principle, we study on the object whose V>1or V<1. If V=1, that suggests the real cost matches the function, it is a perfect situation. If V>1, that suggests the cost of the function is low or the function is surplus, sometimes it is caused by the high cost of other components. If V<1, that suggests the cost is on the high side or the function is insufficient. If V=0, that suggests the component can be combined or omitted.

3. Value engineering analysis of the headstock gear

3.1 Distribution of cost

The headstock gear consists of one screw stem, lower cover, operation board, upper cover, nut and two operating arms, whose cost is 120, 110, 63, 25, 22,18 yuan according to priority.

Each cost of components divided by the total cost of the headstock gear can we get the proportion of total costs of each components, then cumulate the proportion of total costs of each components one by one can we get the cumulative proportion of total costs. According to process above, we can calculate the result of ABC analysis of the headstock gear, as table 1 shows.

According to the principle of classification, if cumulative proportion of total costs of the component is between 60%-70%, the component is classifiled as the A classfication, if it is between 15%-20%, the component is classifiled as the B classfication, and if it is near 10%, the component is classifiled as the C classfication. From the result, we can see that screw stem, lower cover should be taken as A class component, operation board, upper cover should be taken as B class component, and operating arm, nut should be taken as C class component.

3.2 Analyzing of function

The basic fuction of the headstock gear is to make the water gate up and down, and the secondary function is easy to operate, durable and with a beautiful appearance. And from the feedback of user, there is a shortcoming that screw is easy to bend and headstock gear is lacking of anti-theft feature.

Through analysis of function of each component, we define the function of screw stem is to make the water gate up and down, the function of lower cover is to fix and support the headstock gear, the function of operation board is to connect operating arm and screw stem, transmit external force, the function of upper cover is to protect the headstock gear, the function of operating arm is to imput external force, and the function of nut is to support the headstock gear, drive screw stem up and down. The function definition of headstock gear' component is shown in table 2.

3.3 Functional evaluation

3.3.1 Defining the functional coefficient

(1) Defining functional importance coefficient

Calculating the importance coefficient using absolute evaluation method which asks 6 technicists to grade for each function. Sum up the grade of each function given by the 6 technicists, and then calculate the importance coefficient using the total grade of each function given by the 6 technicists to divide by the total grade of the headstock gear.

The grade given by technicists and the result of calculating the functional importance coefficient are just like table 3 shown. From the result, we can see that functional importance coefficient of making the water gate up and down is 36.33%, functional importance coefficient of easy to operate is 25.17%, functional importance coefficient of durable is 30.33%, functional importance coefficient of beautiful appearance is 8.17%.

(2) Calculating the functional evaluation coefficient of key components

Asks 6 technicists to grade for each function of each component, the total grade of each function is 100, which is shown in table 4. Then calculate the functional coefficient of each component shown in table 5 by multiplying functional importance coefficient which is shown in table 3 and the functional proportion coefficient which is shown in table 4. From the result we can see that functional evaluation coefficient of screw stem, lower cover, operation board, upper cover, operating arm and nut is 0.2449, 0.1400, 0.1974, 0.0770, 0.0820 and 0.2587.

3.3.2 Defining the cost coefficient

Calculating the cost coefficient of the 6 key components according to their current cost, the result is shown in table 6. From the result we can see that the cost coefficient of screw stem, lower cover, operation board, upper cover, operating arm and nut is 0.3352, 0.3073, 0.1760, 0.0698, 0.0614 and 0.0503.

3.3.3 Calculating the value coefficient

The 6 key components' value coefficient can be calculated according to functional evaluation coefficient table(table 5) and cost coefficient table(table 6), which as table 7 shown, in order to determine the target of improvement. The value coefficient of screw stem, lower cover, operation board, upper cover, operating arm and nut is 0.7306, 0.4556, 1.1216, 1.1032, 1.3355 and 5.1431. So the order of the components to be improved is lower cover, screw stem, upper cover, operation board, operating arm and finally the nut.

3.3.4 Result of value analysis

According to the value coefficient of the 6 key components shown in table 7, we can come to a conclusion:

(1) Lower cover and screw stem are the main components need to be improved, for their value coefficients are less than 1, which means the function are too less or the cost are too much.

(2) Operation board and upper cover need not to be improved for their value coefficients are close to 1 which means the function and the cost are nearly the same.

(3) The coefficients of nut and operating arm are more than 1, which means the cost is already lower compared with function that has already met the needs. And in this condition, nut and operating arm are not the target of value analysis, we may neglect the analysis of them.

4. Conclusion and Improving Suggestion

The analysis of value engineering suggests that we should improve the headstock gear according to the order of lower cover, screw stem, upper cover, operation board, operating arm and nut, in order to meet the need and reduce the cost. On the other hand, consumers require to the anti-theft feature, so we should take it into consideration when improving.

4.1 Suggestion on the improvement of lower cover

From the definition of function, we can see that the function of lower cover is to fix and support the headstock gear. For the function of the lower cover is determined by the structure of the headstock gear and its function has already met the needs, it is not work to raise the value coefficient through promoting the function, so we can do nothing but reduce the cost of the lower cover to promote the value coefficient.

At present, gray cast-iron (HT200) is widely used as the material of lower cover, we can look for a new material which has equal or better function on intensity, hardness, cost and so on to replace the gray cast-iron.

4.2 Suggestion on the improvement of screw stem

From the feedback of user, there is a shortcoming that screw is easy to bend and headstock gear is lacking of anti-theft feature. So the improvement of screw stem should focus on raising its function.

(1) Screw bending solution

Add a screw set in the screw cover, so it can prevent its bending and achieve the purpose of security.

(2) Improving the function of anti-theft

Add a special draw-in gear in the operating arm, which can be used to open the head and operate the gate. It is the only way to open the screw top cover and a tool for opening and closing gates. The process of opening the gate, it can ensure that the screw is closed and unexposure at any opening degree, playing the role in anti-theft and anti-sabotage.

Meanwhile, we can also raise the value coefficient by the way of looking for new material with high performance and cheaper cost.

4.3 Improving program evaluation

According to the conclusion of YANG Lin and REN Shang-hua in the article of discussing on the benefit of improvement and use of new type headstock gear, the cost of improved headstock gear can be reduced to 320 yuan per contignation, therefore we fix a target cost of 320 yuan, then calculate the target reduction of each component' cost which is shown in table 8 through multiplying functional evaluation coefficient and total target cost.

From the result, we can see the target cost of screw stem, lower cover, operation board, upper cover, operating arm and nut is 78.37, 44.80, 63.17, 24.64, 26.24, 82.78. Compared to the real cost, we can see that the cost of screw stem and lower cover can separately be cut down 41.63 yuan and 65.20 yuan, which can be achieved by the appliance of new material and new technology. The cost of operation board and upper cover is nearly the same before which means existing technology and improved technology are nearly the same and need not to be improved. The current cost of nut and operating arm is obviously lower than improved cost, which means existing technology is better than improved technology, also need not to be improved.

Through evaluating the improving program, we can see that the headstock gear improved based on the Value Engineering can solve the disadvantange of screw bending and lacking of anti-theft feature, with the cost can be reduced to 320 yuan per contignation.

References

Lawrence D. (1972). Miles.*Techniques of Value Analysis and Engineering*, New York, Mcgraw-Hill (Tx), June.

LI, Zhi-rong, XUE Song, NI Cui-ping (2009). Installation, maintenance and conservation of the headstock gear. *Water Conservancy of JiangSu Province,* 12:27-28

LIU Lie-wei. (2010). Strategy on choice of technological innovation and management for small and medium-sized enterprise. *Knowledge Economy,* 6:107

REN Jie, ZHANG, Xiao-hua. (2008). Appliance of Value Engineering on the construction enterprise. *Construction Economy,* 6:50-51

XU, Wen-sheng. (1999). Discussing on the influence of technical progress on the management of enterprise. *Management Science of Shanghai,* 6:33-34

YANG ,Dao-fu. (2008). Improvement of the headstock gear. *Yellow River,* 4:30-31

YANG, Lin, REN, Shang-hua. (2009). Discussing on the benefit of improvement and use of new type headstock gear. *Water Conservancy of Inner Mongolia Autonomous Region,* 2:58-59

ZHOU Shu-ling. (2008). To Apply on Commenting of the Value Engineering in Tendering for the Construction Projects. *Value Engineering,* 4:90-92

Table 1. ABC Analysis on the Headstock gear

Name of Component	Number	Proportion of the Total Number	Current Cost (yuan)	Proportion of Total Costs	Cumulative Proportion of Total Costs	Classification
Screw Stem	1	14.286%	120	33.52%	33.52%	A
Lower Cover	1	14.286%	110	30.73%	64.25%	A
Operation Board	1	14.286%	63	17.60%	81.85%	B
Upper Cover	1	14.286%	25	6.98%	88.83%	B
Operating Arm	2	28.570%	22	6.15%	94.98%	C
Nut	1	14.286%	18	5.02%	100.00%	C
Total	7	100%	358	100%		

Table 2. Function Definition of Headstock gear' Component

Name of Component	Function Definition
Screw Stem	To Make the Water Gate Up and Down
Lower Cover	To Fix and Support the Headstock Gear
Operation Board	To Connect Operating Arm and Screw Stem, Transmit External Force
Upper Cover	To Protect the Headstock Gear
Operating Arm	To Imput External Force
Nut	To Support the Headstock Gear, Drive Screw Stem Up and Down

Table 3. Calculating the Functional Coefficient

Function of Headstock gear	Expert Rating						General Comments Scores	Functional Importance Coefficient
	A	B	C	D	E	F		
Make the Water Gate Up and Down	30	40	35	36	39	38	218	36.33%
Easy to Operate	25	23	25	28	26	24	151	25.17%
Durable	30	27	36	29	32	28	182	30.33%
Beautiful Appearance	15	10	4	7	3	10	49	8.17%
Total	100	100	100	100	100	100	600	1.0000

Table 4. Functional Distribution Table of the Key Components

Name of Component	Functional Item %			
	Make the Water Gate Up and Down	Easy to Operate	Durable	Beautiful Appearance
Screw Stem	30	25	20	15
Lower Cover	0	25	20	20
Operation Board	20	25	15	20
Upper Cover	0	0	20	20
Operating Arm	15	0	5	15
Nut	35	25	20	10
Total	100	100	100	100

Table 5. Functional Evaluation Coefficient of Key Components

Name of Component	Functional Item				Functional Evaluation Coefficient
	Make the Water Gate Up and Down 0.3633	Easy to Operate 0.2517	Durable 0.3033	Beautiful Appearance 0.0817	
Screw Stem	0.1090	0.0629	0.0607	0.0123	0.2449
Lower Cover		0.0630	0.0607	0.0163	0.1400
Operation Board	0.0727	0.0629	0.0455	0.0163	0.1974
Upper Cover			0.0607	0.0163	0.0770
Operating Arm	0.0545		0.0152	0.0123	0.0820
Nut	0.1271	0.0629	0.0605	0.0082	0.2587
Total					1.0000

Table 6. Cost Coefficients Table

Name of Component	Cost yuan	Cost Coefficients
Screw Stem	120	0.3352
Lower Cover	110	0.3073
Operation Board	63	0.1760
Upper Cover	25	0.0698
Operating Arm	22	0.0614
Nut	18	0.0503
Total	358	1.0000

Table 7. Value Coefficient Table

Name of Component	Functional Evaluation Coefficient (F)	Cost Coefficient (C)	Value Coefficient (V)	Order of Improvement
Screw Stem	0.2449	0.3352	0.7306	
Lower Cover	0.1400	0.3073	0.4556	
Operation Board	0.1974	0.1760	1.1216	
Upper Cover	0.0770	0.0698	1.1032	
Operating Arm	0.0820	0.0614	1.3355	
Nut	0.2587	0.0503	5.1431	

Table 8. Target Cost of Component Table

Name of Component	Functional Evaluation Coefficient	Componets Cost	Cost Coefficient	Value Coefficient	Target Cost	Amount of Cost Reduction
Screw Stem	0.2449	120	0.3352	0.7306	78.37	+41.63
Lower Cover	0.1400	110	0.3073	0.4556	44.80	+65.20
Operation Board	0.1974	63	0.1760	1.1216	63.17	-0.17
Upper Cover	0.0770	25	0.0698	1.1032	24.64	+0.36
Operating Arm	0.0820	22	0.0614	1.3355	26.24	-4.24
Nut	0.2587	18	0.0503	5.1431	82.78	-64.78
Total	1.0000	358	1.0000		320	38

A Reappraisal of the Exchange Rate Determination:

A Liquidity Approach

Yan Li (Corresponding author)

Department of Economics, University of Wisconsin – Eau Claire

105 Garfield Ave. P.O.Box 4004; Eau Claire, WI; 54702-4004, USA

Tel: 1-715- 836-3507   E-mail: liyan@uwec.edu

Xiangming Fang

Department of Biostatistics, East Carolina University

2435F Health Sciences Building, Greenville, NC 27858, USA

Tel: 1-252-744-6041   E-mail: fangx@ecu.edu

Abstract

A dynamic general-equilibrium model with limited participation in financial markets is constructed to study the determination of nominal exchange rates in a small open economy with tradable and non-tradable goods. The qualitative and quantitative implications of this framework are assessed under flexible prices. Then, the panel dynamic OLS regression is applied to seek the empirical support for this liquidity-exchange rate model, a slight departure from the standard monetary-exchange rate model. The findings in the present paper shed light on the cointegration between the macroeconomic fundamentals and nominal exchange rates.

Keywords: Cointegration, Exchange Rate Determination, Liquidity Effects

JEL Codes: F31; F37; F41; F42

Acknowledgements

1. Introduction

The last two decades have witnessed dramatic innovations in both the theory and the empirical understanding of international finance, with the development of the "New Open Economy Macroeconomics" (NOEM). However, a number of challenges remain. One of the most widely debated and still not-well-answered questions is how nominal exchange rates are determined.

Since the outset of the recent float in the early 1970s, a variety of research avenues for the exchange rate determination have been constructed. Among them, the monetary model remains a dominant paradigm, which suggests a long-run equilibrium relationship among the relative money stocks, the relative income levels and the nominal exchange rates (Frenkel 1976). However, the development of this monetary approach is accompanied with extensive and unresolved debates regarding its empirical validity. Many previous empirical studies have not established sufficient evidence to verify the suggested relationship between the exchange rates and macroeconomic fundamentals.

Meese and Rogoff (1983 a) argue that the conventional monetary-exchange rate models can not significantly outperform a naive random walk in explaining the behavior of nominal exchange rates. This casted a devastating critique of standard monetary models and marked a watershed in exchange rate economics. Then, new methods to test the model are constantly springing up, and the results are mixed. For instance, the cointegration technique is used by MacDonald and Taylor (1993) to examine the validity of the forward-looking monetary exchange rate models. Empirical support was found, but such a test failed on a longer span of data (Sarantis 1994). Recently, the attempt in determining exchange rates through monetary models has seemed to claim more success. By employing a panel of time series data, Mark and Sul (2001) successfully improved the power of the tests. Their results show that variations in monetary fundamentals induce deviations of exchange rates from the equilibrium

level. Therefore, such co-movement could be used to study the exchange rate dynamics, which restored some hope in the standard monetary model.

Most of the previous research, as mentioned above, mainly relies on the sophistication of econometric techniques to generate statistical evidence in favor of the existing economic theory. However, not much attention has been really directed to the theory itself, the underlying mechanism that governs the exchange rate behavior. Our paper attempts to revisit the benchmark model of exchange rate determination from another perspective. In addition to the aggregate money stock, we will examine the impact of money diffusion on exchange rates in this framework, where monetary policy is introduced by open market operations. Then, we investigate the way in which such a liquidity effect relates to the exchange rate dynamics.[1] To take a closer look at the purchasing power parity (PPP), one of the fundamental building blocks of monetary exchange rate models, we assume in the present paper that the production is endogenized, with two different goods sectors coexisting in each country: the non-tradables and tradables. Therefore, the law of one price is generally broken, even in an environment with flexible prices. Nominal exchange rates are now determined not only through financial transactions, but also through the transactions in the tradable goods market.

Another interesting feature in this environment is how we will model the liquidity effect, the so called distributional effect of monetary policy. To explore the propagation of monetary shocks, two broad classes of models are available in the literature, sticky price and limited participation. In a voluminous recent literature, the sticky price model has become the workhorse of monetary policy analysis in both the closed-economy and open-economy, where the adjustment in prices is sluggish. For instance, Obstfeld and Rogoff (1995), Hau (2002), and Clarida, Gali and Gertlerc (2002). At the same time, some effort has been devoted to limited participation models (liquidity models, hereafter), where monetary policy plays a role in the economy due to its asymmetric distributional effects on economic agents. That is the impact of monetary policy will diffuse gradually in the economy and different economic agents will be affected at different timings. Recent work on liquidity effects in a closed economy was initiated by Grossman and Weiss (1983), and further developed by Lucas (1990) and Fuerst (1992). Then, Schlagenhauf and Wrase (1995), Grilli and Roubini (1996) and Alvarez, Atkeson and Kehoe (2002) extend this line of research to the open-economy settings.

There is no sufficient evidence so far to distinguish the performance of sticky price and liquidity models. In the present paper, we will pursue the "liquidity" path by incorporating the frictions of limited participation into financial markets. Then, a small open economy model is laid out to study the role of liquidity effect in the exchange rate determination. The theoretical results show the cointegration between the nominal exchange rates and an expanded set of macroeconomic fundamentals. The speed at which the additional liquidity diffuses in the economy does affect the exchange rates. Later, a special case of this revised monetary model is tested against a collection of six OECD countries using monthly data running from 1985 to 2005. Specifically, we pool the time series data and then adopt the panel dynamic OLS method proposed by Mark and Sul (2001). The generated statistical evidence lends support to our model.

The remainder of this paper is organized as follows. In Section 2, the theoretical model is laid out. In Section 3, the representative household's problem is characterized and equilibrium conditions are derived. In Section 4, the panel dynamic OLS regression is applied to seek an empirical support for the theoretical model. Section 5 concludes.

2. The Model

Consider a world consisting of two countries: Home and Foreign, between which consumption goods are traded. Three types of markets exist in each country, a financial market, a tradable goods and a non-tradable goods markets that open and close sequentially. The two countries are (ex-ante) symmetric. Without loss of generality, we will only describe the Home economy, with the understanding that similar expressions are employed to characterize the Foreign economy. All Foreign variables are denoted with an asterisk.

Each country is inhabited by a unit mass of infinitely lived households. In a given country, each household is specialized in producing some goods but wishes to consume goods that are different from its own products. Therefore, exchange is necessary for consumption. The absence-of-double-coincidence of wants is assumed, which provides a role in this economy for fiat money and credit. A representative household is consisted of a credit buyer, a continuum of financial transactors of mass 2, a continuum of workers and a continuum of cash shoppers with mass 1, respectively. In particular, the credit buyer dwells at the non-tradable goods market, while the shoppers with cash wonder in the tradable goods market. Each worker is endowed with a flow of one unit of time every period. At any point in time, a worker is either working or enjoying leisure. The heterogenous wealth distribution and endogenized labor supply decision introduce idiosyncratic risks into this model. Following

Lucas (1990), we group different agents into large households, in which each agent shares the same amount of consumption and regards the household's utility as the common objective. Therefore, idiosyncratic risks across agents are smoothed out within each household. Agents' decision problem can be simplified as a representative household's maximization problem.

2.1 The Government

Monetary policies are conducted by the government via open market operations in the model. In period t, the government in the Home (Foreign) country chooses the quantity of within-period nominal bonds to issue, denoted by $\overline{B}_{t+1}(\overline{B}_{t+1}^{*})$, such that

$$\overline{B}_{t+1} = \gamma_t \overline{M}_t \tag{1}$$

$$\overline{B}_{t+1}^{*} = \gamma^{*} \overline{M}_t^{*}$$

for $t = 0, 1, 2, 3,\ldots$, where $\overline{M}_t(\overline{M}_t^{*})$ is the quantity of aggregate money balance at the beginning of period t in Home (Foreign) country. Note that $\gamma_t(\gamma_t^{*})$ is a random variable. It indicates the monetary policy instrument of the central bank in the Home (Foreign) country.

The specification of monetary policy is generally controversial. Bernanke and Blinder (1992) argue federal fund rate is superior to monetary aggregate and treasury bill rate in predicating monetary policy. Christiano and Eichenbaum (1992c) claim that innovations to nominal non-borrowed reserves measures the stance of monetary policy well. Walsh (2005) modeled policy shocks with innovations to the nominal interest rate. Williamson (2004), however, identifies the monetary policy by changes in the monetary aggregate. In this paper, we follow Williamson (2004) to focus on monetary policy shocks embodied by a monetary aggregate change, although it is realized that not all changes in monetary aggregate are necessarily caused by monetary policy shocks. The financial market structure in the model is complete and relatively standard in the literature.

2.2 The Representative Household

Since the Home and Foreign country are isomorphic, we focus on the behavior of a representative Home household and provide details only for Home households' objective and trading opportunities.

A representative household starts period t with a money balance M_t, carried from period $t-1$ and consisted of reserve M_t^r and cash M_t^c. Note that, M_t^r and M_t^c are held by a continuum of financial intermediaries, indexed on the interval $[0,1]$ and $[1,2]$, respectively. We assume all the financial transactions, such as depositing or withdrawing money from the reserve account with the central bank, can only be carried out by the financial intermediaries in the households.

At the start of period t, financial intermediaries indexed on interval $[0,1]$ arrive at the asset market with reserve balance M_t^r. At the same time, the cash-carrying financial transactors on the interval $[1,2]$ take a trip to the tradable goods market and deliver M_t^c to all cash buyers.

Once financial transactors have left, the two aggregate shocks, the monetary shock γ_t and the productivity shock A_t are revealed, where γ_t measures the degree of central bank intervention through open market operations. Note that, since cash-holding transactors have already left the household, the household cannot revise its consumption decision about tradable goods according to the changed financial market circumstances. That is, after γ_t is disclosed, the money allocated for tradable goods is already locked in and cannot be readjusted.

The asset market opens. Bonds denominated in home and foreign currencies are bought and sold there. For instance, each home (foreign)-currency-denominated bond is issued at a price $q_t(q_t^{*})$ at the beginning of period t and promises a delivery of 1 unit of home (foreign) currency at the end of the period. Since no overdraft is allowed on reserve accounts, the purchase of bonds faces a cash-in-advance constraint. Then, asset market closes and these financial transactors move to the non-tradable goods market, where credit buyers purchase goods using within-period IOUs. All such credit will be cleared by fiat currency through financial intermediaries at the end of the period.

Now, let us turn to the tradable goods market. After the cash is evenly distributed, each shopper faces with two itineraries, which we call *itinerary 1* and *itinerary 2*. Along itinerary 1, shoppers travel to the domestic tradable goods market, while itinerary 2 leads them to the foreign tradable goods market. Let $1 - \alpha_t$ denote the fraction of shoppers who follow itinerary 1 and α_t the fraction who take itinerary 2, where $\alpha_t \in [0,1]$ is a random variable. Note that, α_t can be interpreted as a natural index of openness and $1 - \alpha_t$ is the degree of home-bias in

consumption basket [2] . Economic theories have suggested that the impact of a monetary policy across countries depends on the openness of the economy.

Next, the household chooses the number of working hours assigned to the traded goods sector (L_{rt}) and non-traded goods sector (L_{nt}), respectively. The total labor supply of the representative household in period t is L_t, where $L_t = L_{rt} + L_{nt}$. Labor is assumed to be internationally immobile. Then, workers in the non-traded goods sector produce output and sell each unit at a price P_{nt} in exchange for IOUs, while workers in the traded sector hands out goods at P_{rt} for money. Later on, credits clear and bonds pay off. All residual balances and trade receipts are collected and possessed by the financial transactors in each market, respectively. Immediately after that, financial transactors are randomly relocated by nature. A financial transactor who is at a given location at the end of the period will be allocated to the other location with probability π, and stay in the same location with probability $1-\pi$, where $\pi \in (0,1)$. Note that π determines how fast the impacts of monetary policy are distributed within an economy and across countries. We assume that a zero-profit trade intermediary exists, which helps to implement currency exchanges. Such currency conversion is costless and can be done instantly by this intermediary according to the prevailing market exchange rate. This assumption implies that shoppers only need to hold home currency when walking around in the goods market.

2.3 The Goods Market

Two sectors of production exist in each economy, the tradable goods market and non-tradable goods market. Labor is the only factor that is employed to produce goods, that is

$$Y_{it} = A_t \cdot L_{it}^{\theta}$$
$$Y_{it}^* = A_t^* \cdot L_{it}^{*\theta}$$

where $i = n, r$, denoting the non-traded and traded goods sector, respectively. Note that, A_t (A_t^*) is the labor productivity shock in the home (foreign) country, which is universally identical for all workers in that country. Breaking up a country's products into two dichotomous categories is relevant for at least three reasons. First, non-tradable goods take a substantial share of aggregate consumption baskets. Secondly, its presence helps to explain the volatility of nominal exchange rates. Thirdly, with non-tradables, consumption levels are not necessarily equalized across countries in response to some aggregate productivity shocks, or move in a synchronized fashion. That implies productivity shocks could exert distinct impacts on consumption across countries. It follows that nominal exchange rates are tied down by traded goods in equilibrium.

3. The Household's Problem

A representative household maximizes its expected intertemporal utility:

$$E_0 = \sum_{t=0}^{\infty} \beta^t [u(C_t) - \upsilon(L_t)] \tag{2}$$

where E_0 represents the expectation conditional on information available at time 0, β is the time discount factor, C_t denotes the consumption bundle in period t and L_t is amount of the working time. We assume that $u(\cdot)$ is strictly increasing, strictly concave, twice differentiable, with $u'(0) = \infty$. And $\upsilon(\cdot)$ is increasing, strictly convex, and twice differentiable, with $\upsilon'(0) = \infty$ and $\upsilon'(1) = \infty$.

The composite consumption C is defined as follows:

$$C = [\mu^{\frac{1}{\phi}} C_r^{\frac{\phi-1}{\phi}} + (1-\mu)^{\frac{1}{\phi}} C_n^{\frac{\phi-1}{\phi}}]^{\frac{\phi}{\phi-1}} \tag{3}$$

where C_r and C_n represent the consumption of tradable and non-tradable goods, respectively, ϕ corresponds to the intratemporal elasticity of substitution between these two types of goods, and $\mu \in [0,1]$ is the relative weight that households put on tradable goods. This parameter is allowed to vary across countries. Similarly, the tradable goods basket C_r is further composed by home-made goods C_h, and foreign goods C_f. That is,

$$C_r = [\alpha^{\frac{1}{\eta}} C_f^{\frac{\eta-1}{\eta}} + (1-\alpha)^{\frac{1}{\eta}} C_h^{\frac{\eta-1}{\eta}}]^{\frac{\eta}{\eta-1}} \tag{4}$$

where $\eta > 1$ is the intratemporal elasticity of substitution between home and foreign tradable goods, α denotes the share of foreign tradable goods and $1-\alpha$ characterizes the home bias in consumption.

At the same time, the formulated maximization problem for a representative household is subject to other constraints, such as:

$$M_t^c + M_t^r \leq M_t \tag{5}$$

The financial transactors located between [0,1] must abide by the following budget constraint:

$$q_t B_{ht+1} + S_t q_t^* B_{ft+1} \leq M_t^r + B_{ht} + S_t B_{ft} \tag{6}$$

$$q_t B_{ht+1} + S_t q_t^* B_{ft+1} + P_{nt} C_{nt} + M_{n,t+1} + T_t \leq M_t^r + B_{ht} + S_t B_{ft} + P_{nt} A_t L_{nt}^\theta \tag{7}$$

where $M_{jt+1}(j = n, r)$ represents the amount of money held by the financial transactors in market j at the end of period t, but before the relocation, T_t the lump-sum taxes paid by the household in period t, and S_t the nominal exchange rate (domestic currency price of 1 unit of foreign currency). In this model, traded goods are priced in the producer's currency, while the non-traded goods prices are denominated in the consumers' currency.

The financial transactors in [1,2] should satisfy the cash-in-advance constraints in the traded goods market as well:

$$(1 - \alpha_t) P_{rt} C_{ht} \leq (1 - \alpha_t) M_t^c$$

$$\alpha_t S_t P_{rt}^* C_{ft} \leq \alpha_t M_t^c$$

The above two cash constraints can be combined into the following

$$(1 - \alpha_t) P_{rt} C_{ht} + \alpha_t S_t P_{rt}^* C_{ft} \leq M_t^c \tag{8}$$

$$(1 - \alpha_t) P_{rt} C_{ht} + \alpha_t S_t P_{rt}^* C_{ft} + M_{r,t+1} \leq M_t^c + P_{rt} A_t L_{rt}^\theta \tag{9}$$

Let $\overline{M}_{t+1}^c$ and $\overline{M}_{t+1}^r$ denote the money supply in tradable and non-tradable goods market, respectively, after all the transactions are implemented according to the household's instructions, but before financial transactors are relocated. Then

$$\overline{M}_{t+1}^r = (1 - \pi)\overline{M}_{n,t+1} + \pi\overline{M}_{r,t+1} \qquad \overline{M}_{t+1}^c = \pi\overline{M}_{n,t+1} + (1 - \pi)\overline{M}_{r,t+1} \tag{11}$$

We are able to rewrite the above problem in a scaled form. That is deflating the appropriate nominal variables by the quantity of money in the tradable goods market $\overline{M}_{rt}$ dropping time subscripts, (e.g. $p_{nt} = \dfrac{P_{nt}}{\overline{M}_{rt}}$ and $e_t = S_t \dfrac{\overline{M}_{rt}^*}{\overline{M}_{rt}}$), using primes " ' " to denote variables dated t and superscripts " – " to denote variables dated $t - 1$. Let $z_{jt}(j = n, r)$ indicate the gross growth rate in the money stock in market j and $V(m_n, m_r, A, \gamma, z_r)$ denote the household's value function in period t. [5] Now, taking the initial conditions $\{m_{n0}, m_{r0}, e_0, l_0\}$ and sequence $\{m_t, p_{nt}, p_{rt}, e_t, q_t\}_{t\geq 0}$ as given, the household chooses sequences $\{c_t, l_t, b_t, m_{n,t+1}, m_{r,t+1}\}$ to solve the following dynamic programming problem:

$$V(m_n, m_r, A, \gamma, z_r) = \max_{c_t, l_t, b_t, m_n, m_r} \{u(c) - \upsilon(l) + \beta E_t[V(m_n', m_r', A', \gamma', z_r')]\}$$

subject   to

$$c = [\mu^{\frac{1}{\phi}} c_r^{\frac{\phi-1}{\phi}} + (1 - \mu)^{\frac{1}{\phi}} c_n^{\frac{\phi-1}{\phi}}]^{\frac{\phi}{\phi-1}}$$

$$c_r = [\alpha^{\frac{1}{\eta}} c_f^{\frac{\eta-1}{\eta}} + (1 - \alpha)^{\frac{1}{\eta}} c_h^{\frac{\eta-1}{\eta}}]^{\frac{\eta}{\eta-1}}$$

$$l = l_n + l_r$$

$$qb_h' + eq^* b_f' \leq (1 - \pi)m_n + \pi + b_h + eb_f$$

$$qb_h' + eq^* b_f' + p_n c_n + m_n' z_r' + \tau \leq (1 - \pi)m_n + \pi + b_h + eb_f + p_n A l_n^\theta$$

$$(1-\alpha)p_r c_h + \alpha e p_r^* c_f \leq \pi m_n + (1-\pi)$$

$$(1-\alpha)p_r c_h + \alpha e p_r^* c_f + m_r' z_r' \leq \pi m_n + (1-\pi) + p_r A l_r^\theta$$

Next, let me substitute the expression of c into the utility function and let λ_1, λ_2, λ_3 and λ_4 denote the multipliers associated with constraints (6)-(9). The first-order conditions then imply that

$$u'(c_h) = (\lambda_3 + \lambda_4)(1-\alpha)p_r \tag{12}$$

$$u'(c_f) = (\lambda_3 + \lambda_4)\alpha e p_r^* \tag{13}$$

Combining equation (12) and (13) yields

$$e_t = \frac{1-\alpha_t}{\alpha_t} \cdot \frac{p_{rt}}{p_{rt}^*} \cdot \frac{u'(c_{ft})}{u'(c_{ht})}$$

Then, assuming that the cash-in-advance constraint for traded goods binds, we can show

$$\frac{p_{rt}}{p_{rt}^*} = \frac{(1-\pi) + \pi m_{nt}}{(1-\pi^*) + \pi^* m_{nt}^*} \cdot \frac{c_{ht}^*}{c_{ht}} \tag{14}$$

To use the above expression for e_t to study the empirical behavior of the nominal exchange rates, we make an additional assumption that the representative households have CRRA utility function. Then, by equation (3) and (4), the ratio of marginal utility of c_h and c_f is

$$\frac{u'(c_{ft})}{u'(c_{ht})} = \left(\frac{\alpha_t}{1-\alpha_t} \cdot \frac{c_{ht}}{c_{ft}} \right)^{\frac{1}{\eta}} \tag{15}$$

Inserting equation (14) and (15) into e, the long-run equilibrium value of the nominal exchange rates can be determined as

$$e_t = \left(\frac{1-\alpha_t}{\alpha_t} \right)^{1-\frac{1}{\eta}} \cdot \frac{(1-\pi) + \pi m_{nt}}{(1-\pi^*) + \pi^* m_{nt}^*} \cdot \frac{c_{ht}^*}{c_{ht}} \cdot \left(\frac{c_{ht}}{c_{ft}} \right)^{\frac{1}{\eta}} \tag{16}$$

Recall, that the general form of nominal exchange rates in the previous literature is written as

$$e_t^s = \frac{m_t}{m_t^*} \cdot \frac{y_t^*}{y_t}$$

where e_t^s represents the exchange rate determined in a standard monetary model, and $y_t (y_t^*)$ the real national income in the Home (Foreign) country. Basically, the conventional model states that the nominal exchange rate is determined by the relative money stock and the relative output of two countries.

Thus, Equation (16) not only encompasses the existing monetary models of the exchange rate, but also incorporates some new embellishments, such as the degree of economic openness (α), the home-bias toward traded goods (η) and the distributional effect of monetary policy shocks across countries (π), where π is an index locating between 0 and 1. It measures how fast that a monetary policy shock diffuses within an economy and transmits across borders.

For a given $\gamma > 0$, we take the derivative of e_t with respect to π by holding other parameters constant, we have $\frac{de_t}{d\pi} < 0$. It says after a contractionary money shock occurs in the Home country, the faster it distributes, the more the home currency appreciates. It is known that the monetary diffusion (π) depends on many factors in the real economic world, including the soundness of financial system, the efficiency of central banks, and so on. Therefore, assigning an appropriate value to π requires an overall evaluation of a country's monetary system and financial markets.

By far, we have shown the cointegration between nominal exchange rates and economic fundamentals in a theoretical framework. In the next section, we turn to question the statistical robustness of this study by employing the panel dynamic OLS regression suggested by Mark and Sul (2001). To make the following analysis easier, we will consider a special case of equation (16), where $\pi = \pi^* = \dfrac{1}{2}$. That is,

$$e_t = \left(\frac{1-\alpha_t}{\alpha_t}\right)^{1-\frac{1}{\eta}} \cdot \frac{m_t}{m_t^*} \cdot \frac{c_{ht}^*}{c_{ht}} \cdot \left(\frac{c_{ht}}{c_{ft}}\right)^{\frac{1}{\eta}} \tag{17}$$

Obviously, equation (16) and (17) indicate a slight departure from the conventional exchange rate determination. They capture in a simple way the basic idea, that nominal exchange rates are not only associated with the underlying macro-fundamentals, such as the aggregate money stock, the aggregate consumption of tradable goods, the degree of economic openness and the distributional effect of monetary policy, but also closely connected to some micro features, including the intratemporal elasticity of substitution between Home and Foreign tradable goods and the bias toward home-made goods.

4. The Statistical Testing of the Model

4.1 The Data

The data set consists of monthly time series observations for the nominal exchange rates, the broad money supply (M3) and the real industrial production. The degree of openness (α_k) is measured by [(industrial imports + exports) / total industrial production], from 1985:M1 to 2005:M12 for six OECD countries, namely Canada, Denmark, Japan, Sweden, United Kingdom and the United States. In the following analysis, the value of industrial products in each country is regarded as their domestically-made tradable goods. All variables are constructed by taking the United States as the numeraire country. The data were extracted from the SourceOECD and U.S Federal Reserve St. Louis. All data are seasonally adjusted.

4.2 Econometric Methodology

The United States is regarded as the "numeraire" , labeled as "0" country in the empirical study. Let s_{kt} denote the log nominal exchange rate between country $k = 1,2,...5$ and the "numeraire" country in time t. To simplify the analysis, equation (17) is used and rewritten into a log-form as:

$$\widetilde{e}_{kt} = \log(e_{et}) = (1-\frac{1}{\eta}) \times \log\frac{1-\alpha_{kt}}{\alpha_{kt}} + \log\frac{m_{kt}}{m_t^*} - \left\{(1-\frac{1}{\eta})\log(c_{kt}^h) - [\log(c_{ht}^*) - \frac{1}{\eta}\log(c_{kt}^f)]\right\} \tag{18}$$

where c_{kt}^h represents country k's consumption of domestically produced tradable goods (c_h) in period t. Then, let x_{kt} denote the deviation of the exchange rate from its long-run equilibrium value, which is defined as

$$x_{kt} = \widetilde{e}_{kt} - s_{kt}$$

The econometric analysis focuses on panel estimation of the following equations:

$$\Delta s_{kt} = \delta x_{k,t-1} + \varepsilon_{kt}$$

$$\varepsilon_{kt} = \varphi_k + \zeta_t + u_{kt}$$

where k indexes country k in consideration, φ_k indicates a country-specific effect, ζ represents a time-specific effect that allows us to explain a limited amount of cross-sectional dependence, and u_{kt} is the residual idiosyncratic error. To control for the possible asymptotic bias, Mark and Sul (2001) suggest that, the current value and h_k leads and lags of Δx_{kt-1} should be included in the regression, that is

$$\Delta s_{kt} = \varphi_k + \zeta_t + \delta x_{k,t-1} + \sum_{f=-h_k}^{h_k} \varepsilon_{kf}\Delta x_{k,t-1-f} + u_{kt} \tag{19}$$

where $k = 1,2,...5$, $t = h_k + 2,...,T - h_k + 1$. Under the current econometric specifications, the null hypothesis is no cointegration exists between the nominal exchange rates and the macro-fundamentals, or

equivalently $H_0 : \delta = 0$. Without the loss of generality, we initially let $\eta = 1.1$. Then the cases where $\eta = 1.15$ and $\eta = 1.2$ are also examined.

The results of the panel dynamic OLS regression for the cointegration test are reported in Table 1, where the significance level is chosen at 5%. The statistical result shows that the null hypothesis of no integration between the macro-funamentals and the nominal exchange rates is rejected, when the U.S dollar is selected as the numeraire currency. In addition, this result is robust to different values of η , the intratemporal elasticity of substitution between home and foreign tradable goods. This statistical test, therefore, provides a simple glimpse of the validity of this liquidity-exchange rate model.

5. Conclusion

Since the collapse of the Bretton Woods system, increasing attention has been focused on the links between the nominal exchange rates and macro fundamentals, suggested by the standard monetary theories of exchange rate determination. However, few of the previous studies have obtained satisfactory success. The "exchange rate determination" problem is far from being resolved.

Our paper is a reappraisal and also an extension of the previous literature. It tries to determine the exchange rates by taking liquidity effects into consideration. A symmetric two-country model incorporated with limited participation and tradable and non-tradable goods are constructed to examine the cointegration between exchange rates and other economic indicators.

The model results show the way in which the nominal exchange rates relate to a set of economic fundamentals, including the degree of economic openness, aggregate money stock, consumption of tradable goods, the home-bias toward domestic goods and in particular, the distributional effect of monetary policies across countries. Then, a panel dynamic OLS regression is applied to investigate the empirical fit of a special case of the model. The statistical testing results are found in favor of this model, a departure from the conventional monetary model of exchange rate determination.

The encouraging evidence obtained in this study also impels us to explore, in the future work, whether there is any economic value to the predictive power of economic fundamentals for nominal exchange rates.

References

Alvarez, F., Atkeson , A. & Kehoe, P. (2002). Money, Interest Rates and Exchange Rates with Endogenously Segmented Markets. *Journal of Political Economy*, 110, 73-112.

Bernanke B. & Blinder, A. (1992). The Federal Funds Rate and the Channels of Monetary Transmission. *American Economic Review,* 82, 901-21.

Chari, V. V., Kehoe, P. J. & McGrattan, E. R. (1999). Sticky price models of the business cycle: Can the contract multiplier solve the persistence problem? *Econometrica*, 68 (5), 1151-1179.

Christiano, L.J. & Eichenbaum, M. (1992c). Liquidity Effects, the Monetary Transmission Mechanism and Monetary Policy. *Economic Perspectives*, 16(6), 2-14.

Christiano, L. & Eichenbaum, M. (1995). Liquidity Effects, Monetary Policy, and the Business Cycle. *Journal of Money, Credit and Banking*, 27, 1113-1136.

Clarida, R., Gali, J. & Gertler, M. (2002). A Simple Framework for International Monetary Policy Analysis. *Journal of Monetary Economics*, 49 , 879-904.

Frenkel, J. A. (1976). A Monetary Approach to the Exchange Rate: Doctrinal Aspects and Empirical Evidence. *Scandinavian Journal of Economics*, 78(2), 200-224.

Fuerst, Timothy (1992). Liquidity, Loanable Funds, and Real Activity. *Journal of Monetary Economics*, 29, 3-24.

Grilli, V. & Roubini, N. (1996). Liquidity Models in Open Economies: Theory and Empirical Evidence. *European Economic Review*, 40, 847-859.

Grossman, S. & Weiss, L. (1983). A transactions-based model of the monetary transmission mechanism.. *American Economic Review*, 73:5, 871-880.

Hairault, Jean-Olivier, Patureau, L. & Sopraseuth, T. (2004). Overshooting and the Exchange Rate Disconnect Puzzle: a reappraisal. *Journal of International Money and Finance*, 23, 615-643.

Hau, H. (2002). Real Exchange Rate Volatility and Economic Openness: Theory and Evidence. *Journal of Money, Credit and Banking*, 34, 611-630.

Lucas, R. E. (1990). Liquidity and Interest Rates. *Journal of Economic Theory*, 50, 237-264.

MacDonald, R. & Taylor, M. (1993) The Monetary Approach to the Exchange Rate. *IMF Staff Papers*, 40 (1), 89-107.

Mark, N. (1995). Exchange Rates and Fundamentals: Evidence on Long-horizon Predictability. *American Economic Review*, 85, 201-218.

Mark, N. & Sul, D. (2001). Nominal Exchange Rates and Monetary Fundamentals Evidence from a Small Post-Bretton Woods Panel. *Journal of International Economics*, 53, 29-52.

Meese, R. & Rogoff, K.(1983a). Empirical Exchange Rate Models of the Seventies. Do They Fit out of Sample? *Journal of International Economics*, 14, 3-24.

Obstfeld, M. & Rogoff, K. (1995). Exchange Rate Dyanmics Redux. *Journal of Political Economy*, 103, 624-660.

Obstfeld, M. & Rogoff, K. (2000). The Six Major Puzzles in International Macroeconomics: Is There a Common Cause? *NBER Macroeconomics Annual*, 15, S.339-390.

Sarantis, N. (1994). The monetary exchange rate model in the long run: An empirical investigation. *Review of World Economics*, 130:4, 698-711.

Schlagenhauf, D. & Wrase, J. (1995). Liquidity and Real Activity in a Simple Open-economy Model. *Journal of Monetary Economics*, 35:3, 431-461.

Walsh, Carl E. (2005). Labor Market Search, Sticky Prices, and Interest Rate Policies. *Review of Economic Dynamics*, 8, 829-849.

Williamson, S. D. (2004a). Limited Participation, Private Money, and Credit in a Spatial Model of Money. *Economic Theory*, 24, 857-76.

Williamson, S. (2005). Limited Participation and the Neutrality of Money. Federal Reserve Bank of Richmond, *Economic Quarterly*, 91, 1-20.

Notes

Note 1. The "liquidity effect" is a general term to describe the impact of monetary policy on the aggregate economy. In this paper, it particularly refers to the effect of monetary policy on financial markets.

Note 2. Obstfeld and Rogoff (2000) claim that by explicityly introducing costs of international trade, one can go far toward explainning a great number of the main empirical puzzles in international macroeconomics. It is easy to show that the effects of trade costs are isomorphic to the effects of home bias in preferences.

Note 3. Hau (2002) investigates the role of nontradeables for the international monetary transmission mechanism. Hairault and Sopraseuth (2004) decompose the empirical volatility of the real exchange rate into two components: the relative price of traded goods and the relative price of nontraded to traded goods across countries.

Note 4. How to specify preferences is important in any micro-founded model. Chari, Kehoe and McGrattan (1999) argue that preferences separable in consumption and leisure are necessary for explaining the high volatility in exchange rates.

Note 5. Since $m_n = \dfrac{M_n}{M_r}$, it is sufficient to include only the money growth factor in traded goods market in the current state vector.

Appendix

The Method of Panel Dynamic OLS

Let $\Delta \underline{s}_k = (\Delta \underline{s}_{1k}, \Delta \underline{s}_{2k}, \ldots \Delta \underline{s}_{Tk})'$ and $\Delta s = (\Delta \underline{s}_1, \Delta \underline{s}_2, \ldots \Delta \underline{s}_N)'$ be the vectors of the observations on nominal exchange rate, $\underline{x}_k = (\underline{x}_{1k}, \underline{x}_{2k}, \ldots \underline{x}_{T-1k})'$ be the $(T-1) \times 1$ vector of observations on x_{kt}, for country k, $\underline{0}$ be a $(T-1) \times 1$ vector of zeros, $\underline{\iota}$ be a $(T-1) \times 1$ vector of ones, I a $T-1$ dimensional identity matrix, $\underline{z}_{kt} = (\Delta x_{k,t-1-h_k}, \ldots \Delta x_{k,t-1+h_k})$, $z_k = (z_{1k}, \ldots z_{Tk})$ and

$$\widetilde{X} = \begin{bmatrix} \underline{x}_1 z_1 \underline{00..0} I \underline{00...00} \\ \underline{x}_2 \underline{0} z_2 \underline{0}...\underline{0} I \iota \underline{0}...\underline{00} \\ \underline{x}_3 \underline{00} z_3 ...\underline{0} I \underline{0}\iota ...\underline{00} \\ \vdots \\ \underline{x}_N \underline{000}...z_N I \underline{00}...\underline{0}\iota \end{bmatrix}$$

The panel dynamic OLS estimator of δ, is the first element of the vector $(\widetilde{X}'\widetilde{X})^{-1}\widetilde{X}'(\Delta\overline{s},)$.   Mark and Sul (1999) show that, as $T \to \infty$, $N \to \infty$.

$$\sqrt{NT} \cdot (\hat{\delta} - \delta) \sim N(\underline{0}, 2\widetilde{V})$$

where $\hat{\delta}$ is the estimator of δ and $\widetilde{V}$ is consistently estimated by $\widetilde{V}_{NT} = \widetilde{B}_{NT}^{-1}\widetilde{A}_{NT}^{-1}\widetilde{B}_{NT}^{-1}$. Note

that $\widetilde{B}_{NT} = \frac{1}{NT^2}\sum_{k=1}^{N}\sum_{t=1}^{T}\widetilde{x}_{kt-1}\widetilde{x}_{kt-1}'$, $\widetilde{A}_{NT} = \frac{1}{NT^2}\sum_{k=1}^{N}\hat{\Omega}_k^2\sum_{t=1}^{T}\widetilde{x}_{kt-1}\widetilde{x}_{kt-1}'$ and $\hat{\Omega}_k^2$ is an estimate of the long

run variance of u_{kt}.

Table 1. Panel Dynamic OLS Results

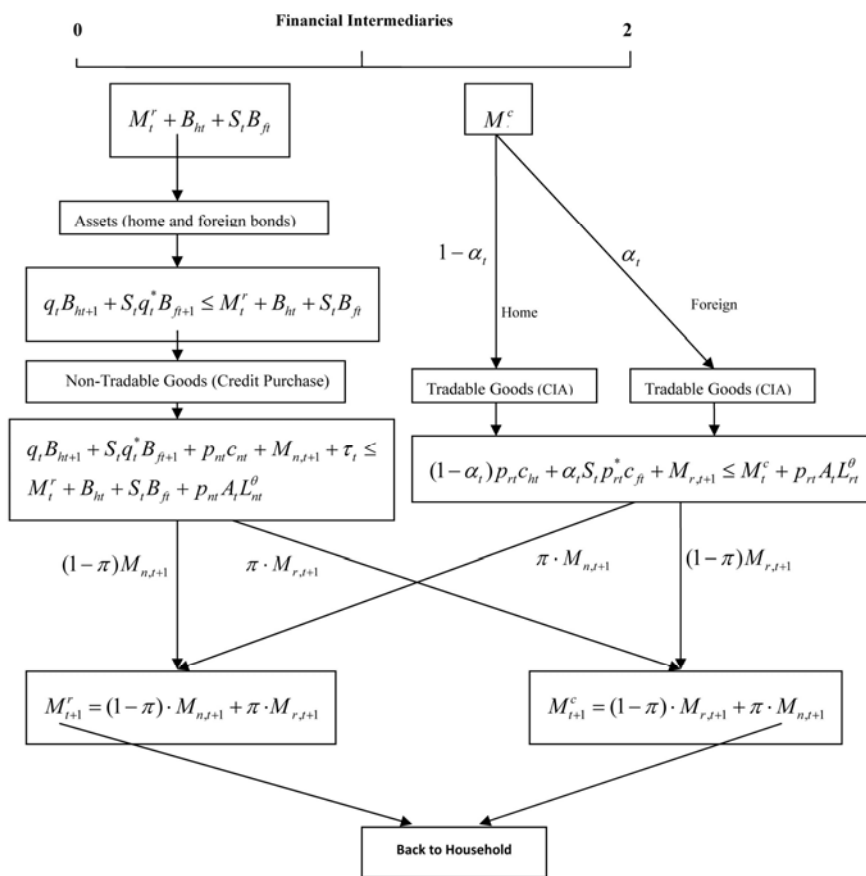| Fundamentals Macro-fundamentals	Numeraire United States	Intratemporal Elasticity η	H_0 $\delta = 0$	STD of δ	P-Value
		η =1.1	0.013	0.00373	0.039
		η =1.15	0.020	0.00301	0.041
		η =1.2	0.018	0.00404	0.032

Figure 1. The Timings

Determinants of Recent Online Purchasing and the Percentage

of Income Spent Online

Brendan Hannah & Kristina M. Lybecker

Department of Economics and Business, Colorado College

14 E. Cache La Poudre, Colorado Springs, Colorado, United States 80903

E-mail: hannah.brendan@gmail.com / kristina.lybecker@coloradocollege.edu

Abstract

The recent stagnation of electronic commerce highlights the need to understand contemporary online consumer behavior. E-commerce's slow growth has coincided with an explosion in the usage of Web 2.0 activities. These novel online venues have created many new channels for online retailers to reach buyers, yet these online activities have gone largely unstudied. This study incorporates current user demographics and Web 2.0 activities to dynamically model the determinants of two key measurements of recent online shopping, a recent purchase and the novel dependent variable, percentage of income spent online. Regression analysis is applied to a nationally representative 2007 survey of the U.S. online population. Determinants of a recent online purchase include, ownership of a credit card, PayPal™ account, listening to podcasts, participating in online auctions, and for the first time, female gender. In a second regression, positive determinants for the percentage of income spent online include male gender, educational attainment, online auctions, instant messaging, and online dating. Online spending increases with time online, and appears to compete with other forms of online entertainment and social networking. These results produce snapshots of contemporary online shoppers that can be used by electronic retailers to determine which product characteristics to highlight for greatest impact, and to efficiently target specific Web 2.0 activities, such as entertainment, podcast and social network websites, to develop new and robust marketing platforms.

Keywords: Online consumer behavior, Online-shopping, E-commerce, Web 2.0 marketing

1. Introduction

The number of Internet users in the U.S. has almost doubled over the last eight years to approximately 220 million in 2008 (Nielsen 2008) with over 70% purchasing online (Pew Internet 2009a). This expansion in the Internet population has coincided with an explosive increase in the online usage of Web 2.0 activities such as social networking, video sharing, and other entertainment sites. These novel online venues have created many more channels for online retailers to reach buyers. Yet yearly growth of e-commerce has fallen short of virtually all analysts' predictions for nearly a decade (Bakos 2001). The percentage of online consumers has remained steady at about 70% since late 2004 (Pew Internet, 2008b) when online buying represented 2.5% of national retail sales (U.S. Census Bureau, 2008). E-commerce has only grown about 0.6% in relation to retail sales over the last four years with revenue just over $144 billion in 2008 (U.S. Census Bureau, 2009; 2010).

Web 2.0 channels present online retailers with novel opportunities to efficiently target potential buyers and market their goods and services. Two noteworthy trends indicate that the success of electronic retailers will depend on cultivating existing consumers: first, the proportion of consumers who never buy online remains steady, and second, over 85% of online shoppers continue to buy each year (Lohse et al., 1999; Pew Internet, 2008b). The ability of e-retailers to grow their markets is contingent on a thorough understanding of contemporary online behavior. Most published studies focus on the decision to adopt Internet shopping rather than recent purchasing behavior and utilize data from the 1990's, a period in which online buyers were predominantly older, wealthier, well-educated males (Swinyard and Smith, 2003). However, current user demographics have shifted to equal percentages of men and women buying online (Pew Internet, 2008a;b) who are younger and possess lower levels of income and education (Cummings and Kraut, 2002). This study seeks to fill this gap by analyzing more current online purchasing behavior and suggesting how online retailers can locate and appeal to potentially receptive buyers.

The contributions of this paper are twofold. First, by utilizing a more recent dataset and including Web 2.0 activities, we are able to unearth the direct links between Internet users and their online shopping decisions. Second, by examining the amount of income spent online, we can propose real world applications for these results and discuss marketing implications for reaching buyers through Web 2.0 channels. To accomplish this, we review previous literature on the determinants of online shopping and current online activities patronized by these consumers. Next, we explain how these variables provide the methodological foundation for the models

and the implementation of these models using this dataset. After presenting the findings and the limitations of the analysis, we apply the findings and suggest paths for future research.

2. Existing Literature

Online shopping has provided researchers with a rich set of questions and wealth of new information on consumer behavior and decision-making. Dating from the late 1990s, these studies provide both scholars and retailers with additional perspective on how the Internet has altered consumption and the factors that have facilitating this change. Information on the demographics, socioeconomics and consumer behavior of Internet shoppers has recently been synthesized into an Online Shopping Acceptance Model (OSAM) by Zhou et al. (2007). Online purchasing appears to be most related to convenience (Zhou et al., 2007) in addition to recreation and economic advantages (Donthu and Garcia, 1999; Korgaonkar and Wolin, 1999; Li et al. 1999; Swaminathan et al., 1999). The higher efficiency of e-commerce has reduced buyer search costs (Bakos, 1997) and produced lower prices for several online goods and services than their offline counterparts (Brown and Goolsbee, 2002; Brynjolfsson et al., 2003; Lee et al., 2003), offering the promise of products supplying good value to economic shoppers.

Online purchasing has also been facilitated by enhanced Internet accessibility as prices have steadily dropped and connections have become faster. Through this, online usage has developed into a daily part of nearly all American's lives for email correspondence and to obtain information (Nielsen 2008). In 2008, just over 90% of American home Internet consumers connected using broadband (WebSiteOptimization.com 2008). Higher connection speeds allow the Internet to be used more heavily for Web 2.0 activities, placing online gaming, instant messaging and social networking as the most time-intensive activities among broadband consumers (Nielsen//NetRatings, 2006). Between 32% and 35% of users visit blogs and social network websites such as MySpace, Facebook and others (Pew Internet 2009a). The same study showed that 28% access or download digital content, 26% participate in eBay and other online auctions, 52% watch video sites including YouTube and its derivatives, and 35% play games online (Pew Internet, 2008b). Advertising through these Web 2.0 channels allows online retailers to capitalize on the huge popularity of these novel online venues. Patronization of these activities can provide online retailers with detailed information on potential buyers' interests and allows for highly efficient marketing at lower costs but remains an unstudied aspect of online purchasing behavior.

To our knowledge, this study is the first in nearly a decade to define the factors that influence contemporary online shopping behavior. Using representative U.S. online consumer data and the current range of Internet activities, two models are developed to explain consumer determinants of online purchasing within the last year and the percentage of income spent online in the last three months, a variable that has never before been studied. There are several elements of this study that both set it apart as a unique contribution and mark it as a valuable addition to the existing literature. First, this study delineates factors that influence online spending rather than the decision to adopt or continue online shopping. The empirical work also utilizes a comprehensive dataset reflecting the newly-diverse, current demographics and online activities of online shoppers, information that can provide insight for online retailers. Since a large portion of the online population uses the Internet primarily for entertainment purposes and thus has greatly increased usage (Pew Internet, 2008b; 2009a), this study is the first to investigate the relationships between utilization of these new activities and online purchasing. The integration of demographic and socioeconomic variables with Web 2.0 activities provides the basis for developing the models presented here that describe the purchasing decisions of the current online population. These findings provide tangible evidence that can be utilized in marketing decisions, highlighting which gender-specific strategies will likely be the most successful. Finally, the study suggests that the greatest promise of online retailing, lower prices through reduced search costs, may not actually be its greatest attraction for today's consumers.

3. Methodology

3.1. The Models

Model 1. The first model of online purchasing within the last year (purchase, y_1) incorporates five categories of variables (demographic, socioeconomic, Internet usage, product perceptions and alternative activities). The dependent variable, y_1, is a Bernoulli random variable: it has only two outcomes, purchase within the last year (1) or no purchase (0). A linear regression model does not fit a binary dependent variable such as y_1, so a logistic regression model is used. The logistic model maps a linear combination of the predictors to the probability that the associated dependent variable equals 1 (Menard, 2002; Gelman and Hill, 2006). Y_1 is analyzed using a weighted (Note 1) logistic regression to ensure the results are nationally representative (Note 2). Table 1 provides a description and statistics of each variable.

$y_1 \sim \text{Bernoulli}(p)$

(Equation 1) $p = \dfrac{1}{1 + e^{-(\beta_0 + \sum_{i=1}^{26} \beta_1 \chi_1)}}$

Model 2. The second model examines the percentage of income spent online within the last three months (spending as a percentage of income, y_2) and incorporates the same five categories of variables described above. A linear regression model is applied to y_2 because its range is the real line (Gelman and Hill 2006). Equation 2 is analyzed as a weighted least squares regression.

(Equation 2) $y_2 \sim N(\beta_0 + \sum_{i=1}^{26} \beta_i x_i,\ \sigma^2)$

3.2. Data Set and Sources

The regression models utilize a data set acquired through a leading, publicly traded market research company that specializes in e-commerce and online demographics (Note 3). Data are compiled from a portion of a forty-two question, closed-end survey conducted in June 2007. The questions focus on demographics, product preferences, and online behaviors, attitudes and activities. The 3,580 participants were selected by Ipsos from their U.S. online consumer panel, and the sample was balanced by demographic and behavioral characteristics derived from contemporaneous U.S. Census Bureau and research pertaining to the U.S. online population.. This dataset is particularly well-suited to this study due to the retail nature of the data collected. This data is proprietary market research and provides an accurate sample of the current online population. The survey questions were constructed to glean information on the online user's decision to purchase a good or service as well as amount spent online, information tailored to the needs of online businesses.

Several shortcomings of the data set may slightly reduce the explanatory power for each of the models. The data set presents the amount spent online and income as bracketed variables. The median amount spent online was divided by median quarterly income to determine the percentage of income spent online during the last three months. However, the use of median values from bracketed variables for age, amount spent online and income does not assure a constant standard error and can lead to lower explained variance. Ceilings on income ($100,000+) and on the amount spent online ($5,000+) also reduce the accuracy of the analysis, and the lack of specific information on high earning and spending outliers is expected to limit conclusions drawn here. The questionnaire also lacked key variables regarding demographics (ethnic background or location), socioeconomics (specific occupation, home ownership or number of dependents), Internet usage (user's technical aptitude or online fluency) and other intangible variables (perceptions of online buying or security in online transactions,) that would be expected to further influence online consumer behavior.

4. Results and Implications for e-Commerce

The models described here utilize representative U.S. data on 2007 online usage, patronization of Internet activities and user demographics.

4.1. Model 1

The logistic regression used for Model 1 is highly significant ($p < 0.001$) (Table 2). Table 4 provides details on the 26 variables studied, of which 12 are significant. The R-squared value of 0.237 is obtained by replicating the model for each participant and creating a predicted value (Note 4). Then a weighted, binary regression is run with the actual participant's outcome (purchase = 1 or no purchase = 0) as the dependent variable and the predicted values as the independent variable. While close to 24% of the variance is explained by the 26 independent variables studied, demographic variables alone explained only 3.3% of the variance (see Table 3).

The only significant demographic determinant of a recent online purchase is the gender of the participant ($p<0.01$ Table 4). To our knowledge, this is the first time female gender is shown to be positively correlated with online shopping; in this case, purchasing within the last year. For an online user with low technological acceptance (Note 5), when adjusted for all other variables, females are 6.6% (37.9% for women vs. 31.3% for men are the probabilities of making on an online purchase) more likely than males to have made a recent online purchase. In contrast, for online users of high technological acceptance, females are only 0.4% more likely to have made a recent online purchase (98.9% vs. 98.5%) (Note 6). These result align with the shifting online demographics as noted by Pew Internet (2008a,b); an increasing percentage of women online and becoming more sophisticated users. Not surprisingly, this translates into a higher rate of recent online purchasing by women than men at the time of this survey. These results provide a reason for retailers to target advertising at websites heavily patronized by women.

The majority of socioeconomic variables showed positive correlations with a recent online purchase, providing verification of previous studies (Bellman et al., 1999; Donthu and Garcia, 1999; Korgaonkar and Wolin, 1999; Li et al., 1999). Even though the regression coefficient is small, household income is positively correlated with recent online buying. For a male user with low technological acceptance, an income increase from $30,000 to

$100,000, translates to a 15.1% (46.4% vs. 31.3%) higher probably of having purchased an item online within the last year. Male online users with low technological acceptance with a payment account such as PayPal™ are 15.0% (46.3% vs. 31.3%) more likely to have shopped within the last year. Female users with low technological acceptance have 23.4% (37.9% vs. 14.5%) higher likelihood of purchasing an item online if they possess a credit card. The results show that marketing preferentially to high earners and increasing access to credit cards or PayPal™ accounts should increase the adoption of online shopping.

The Internet usage determinants include several previously studied variables on communication and information retrieval. In contrast to the findings of previous studies (Huang, 1998; Bellman et al., 1999; Bhatnagar et al., 2000), weekly Internet usage is not significantly correlated with a recent purchase. Use of email, online research of products, use of a search engine, software downloads, and investigation of travel online is all positive, significant determinants of recent online shopping. Use of Instant Messenger for communication, a previously unstudied variable, is not significantly correlated.

Several Web 2.0 variables describing contemporary Internet activities such as shopping behavior, entertainment and social networking are also included in the regression models. Of these, participation in online auctions is the most significant determinant, followed by listening to podcasts. The remaining five variables are not significant determinants of recent online purchasing (blogs, online gaming, online dating, social networking, classified ads). These findings demonstrate that many Web 2.0 channels, such as social networking sites are not effective advertising channels to induce an online user's first purchase.

These data include measures of product perceptions in order to account for their influence on contemporary online consumer behavior. Recent online purchasing is strongly correlated with a user preference for products that are described as new and innovative while the variable for products described as good values is statistically insignificant. These findings indicate that new, dynamic product lines should highlight innovativeness in their descriptions and advertising.

Contrary to Bellman et al.'s (1999) theory of time starvation, time spent working proved insignificant in explaining recent online purchasing. In addition, given that weekly television hours is not a determinant, electronic retailers should be less motivated to advertise on television, at least to heavier television watchers. Their resources might be better spent advertising via new channels on the Internet that allow for targeted marketing, such as podcasts. Most users apparently view Internet shopping as a time saving activity, driven by convenience and the ability to find novel and hard to find items.

4.2. Model 2

Model 2 Using All Data. The second model utilizes a novel dependent variable, the percentage of income spent online in the last three months. As reported in Table 2, the regression is highly significant. Table 4 provides the coefficients and describes the significance of the 26 determinants. These variables explain 19.4% of the variance, while demographic variables account for only 2.1% (see Table 3).

The second model reveals that male gender and higher educational attainment are positively correlated with the percentage of income spent online in the last quarter. While demographic factors account for less of the variance than in the first regression, the percentage is statistically significant. Males spend 0.361% more of their total quarterly income online than do women, an increase of $40.05 quarterly (actual; Note 7). This finding is particularly important since it is a far greater spending increase than previously reported for men who purchased $3.15 more online annually than did women (Lohse et al., 1999). College graduation increases the percentage of total quarterly income spent online by 0.24% (model derived; Note 8) above a high school degree. These findings track previous results closely and align with the demographic hypotheses. Targeting an audience that is male and well educated should produce more revenue and allow for highly efficient marketing.

The influences of the socioeconomic determinants are somewhat different in the second regression. There is a significant, though very small, negative correlation between household income and percentage of income spent online because households with lower incomes tend to spend a larger percentage of income online, even though the actual amount spent online is less than that spent by higher income households. Possession of an online deferred payment account is a strong positive determinant of the percentage of income spent online in the last three months. In contrast, possession of an online payment account such as PayPal™ is not a significant determinant. Online purchasers using deferred payment accounts spend 1.79% more income per quarter. Although economic data are not available, online deferred purchases are relatively large (usually requiring a purchase of at least $99) and possibly account for an increase in a user's online spending. To generate more revenue, these results suggest that online retailers should provide more methods for buyers to establish and utilize online deferred payment accounts, focusing less on PayPal^{TM} and other similar payment systems.

Internet usage determinants encompass several correlated variables with the percentage of income spent online, positive determinants are high Internet usage and communication via Instant Messenger while email is a negative

determinant. The only significant information retrieval variable is obtaining stock quotes, which is positively correlated with the percentage of income spent online in the last three months. Within both models there are significant correlations with participation in online auctions but not with posting classified ads. The strong positive correlations observed here suggest that heavier Internet users, stock owners and those who participate in online auctions are more likely to spend a higher percentage of their income online, providing target markets for online retailers.

In the second model, all entertainment and social networking variables are determinants of percentage of income spent online. Podcasting and online dating are positive determinants while online gaming, visiting social network sites and blogging are negative determinants. These results suggest that online retailers could more profitably shift their advertising to podcasts, communication providers and online dating services.

While perception of a product as new and innovative is a positive determinant, good value is a significant negative determinant. Given these results, product lines that are novel or evolve frequently should be highlighted as such. E-retailers' marketing should align with consumers' perceptions and the Internet provides unparalleled flexibility for retailers to update websites to coincide with their target audience's perceptions and desires.

Alternative activities yield little explanatory power in either model. The lack of significant correlations between weekly television hours and percentage of income spent online again suggests electronic retailers should steer marketing projects away from television and towards more profitable advertising channels such as podcasts or other online venues that reach buyers more directly. Given that it is not currently possible to selectively bypass ads in video viewed online, advertisers have the opportunity to target marketing to this captive audience or even personalize advertising using viewers' search profiles. Although television viewing online was not a variable studied here, it should be incorporated into future research because of its rapid expansion (a sevenfold increase between 2006 and 2007) due to increased broadband adoption coupled with the virtually limitless archived and contemporaneous media available from television networks or free from third parties (Pew Internet, 2009a,b).

Model 2 Using Partitioned Data. The data set is partitioned to better understand the influence of gender, age and income, the only variables that show non-normal distributions. (Nationally representative information may still be obtained by weighting partitioned categories). The first partitioned data set is stratified by gender; then each data set is applied to the second model (Table 2). The results for men (Model 2B) show much more variance explained (31.5%) than for women (Model 2C, 8.6%). The models reveal very different determinants of online spending for men and women, but the reasons for these differences are beyond the scope of this study. The only commonalities across gender are in the impacts of income (a small, negative effect) and possession of an online deferred account, though the coefficient for men is almost six-times greater than that of women.

For males, educational attainment, deferred online payment, use of instant messaging, downloading software, online dating, and perception of new and innovative products are all significant determinants, with a deferred online payment account providing most of the predictive power (Table 4). Interestingly, significant negative determinants are use of email, online gaming and blogging. Men appear to be strongly attracted by novel products and are not value shoppers. Online gaming is a highly significant negative determinant only for men, aligning with the rest of this data suggesting that men use online shopping as a form of entertainment. Deviating from the overall data set, online male shoppers show a significant negative correlation between percent of income spent online and hours watching television.

With its lower explained variance, the regression model for women has fewer significant determinants but unearths some key gender-related differences. The determinants of women's online spending behavior support Bellman et al.'s (1999) theory of time starvation. For women only, work hours and having a high-speed connection are positive determinants. Similarly, none of the entertainment usage or social networking variables is significant. In addition to being more convenience-oriented, women who spend more online do not appear to be drawn to new or innovative products. Sophisticated Internet users, they participate in online auctions and appear to be responsible for the significance of stock quotes as a significant determinant for Model 2A.

Further partitioning of the data for men by income and age (Models 2D, 2E, 2F) yields improvements in the percentage of variability explained (Table 2). In Model 2D, for men with household incomes less than $35,000, 66.7% of the variability is explained by this model. Positive determinants are educational attainment, deferred payment, Instant Messenger, online auctions, classified ads, and new and innovative products (Table 4). High-speed connection, product research and weekly work hours are negative determinants. A college graduate at this income level, on average, spends 1.15% (model derived) more income online quarterly than someone with just a high school degree. The most important factor, the variable with the largest coefficient, is the possession of an online deferred payment account. This result is not surprising and again points to the attention online retails should give to such advertising venues. These results illustrate a profitable target market for retailers: men with household incomes less than $35,000 but with a higher education seem to be novelty-oriented. Men with a

household income less than $35,000 spend 1.17% (actual) of their income online each quarter, a higher percentage than those earning more.

Although individuals in the highest income bracket (household income of greater than $100,000) spend more online than those in the lower income brackets, their percentage of income spent online is lower, 0.75% (actual). The partitioned data set of males with household incomes greater than $100,000 (Model 2E) explains 29.1% of the variance in online spending (Table 2). Similar to lower earners, educational attainment, online auctions and novel products are positive determinants but not weekly work hours (Table 4). Positive Internet usage determinants are quite different for this economic group; high speed connection, weekly usage, travel research, and online dating. Not surprisingly, possession of an online deferred account is not a determinant of online spending for these highest earning men and good value is actually a negative determinant for this group. Online gaming is also a negative determinant. Given the very distinct results for high-income men, e-retailers probably require a specialized approach, using only select Web 2.0 channels to attract the business of these high earners. This group was the smallest of any examined (n=226), and it is possible that a model using their actual income figures might provide additional insight into the online consumer behavior of this important marketing target.

Online retailers need to rely on models that explain large amounts of variance in their target market. Model 2F, applied to men aged 45-54, accounts for 79.1% of the variance at a highly significant level despite the lack of a significant correlation with household income. In this age group, positive determinants are downloading software, instant messaging, online dating, and most significantly, having an online deferred account and products perceived as new and innovative (Table 4). The highest observed coefficients in this model are again associated with online deferred payment. Negative determinants are high-speed connection, product research, social networking sites, online gaming and weekly television hours.

While the R^2 values for Models 1 and 2 are relatively low (23.7% and 19.4%, respectively), both regression equations were statistically significant (p value < 0.001) and our determinant analysis relies only on variables that show statistical significance based on at least a p value ≤ 0.05. Admittedly, the extent to which unknown, confounding variables affect the model's results are unknown and beyond the scope of this study. Additionally, several key variables, both demographic and socioeconomic, are missing from the data set and limit its interpretation. More complete information about survey participants would allow for a richer and more thorough analysis.

Nevertheless, the large number of survey participants allows the data to be partitioned in order to further explore purchasing behaviors. An improvement in the explained variance of Model 2 (spending) was found for men but not for women, suggesting that the inclusion of other, unstudied variables in a regression analysis may provide more explanatory power of female online shopping behavior. Partitioning the data for men enhanced the explanatory power of Model 2 for spending by men with household incomes less than $35K and of ages 45-54. Knowledge of the causality and process between the demonstrated determinants and online spending would be necessary to translate these linkages into more effective marketing strategies.

5. Conclusions

According to the Internet Advertising Revenue Report (2009), Internet advertising grew 10.6% in 2008. In the midst of an economic downturn, and in a year in which cable television advertising was the only other category of advertising to grow, this clearly indicates the importance and potential of the online venue (Interactive Advertising Bureau 2009). Recognizing its importance, the issue then becomes how e-retailers can most effectively utilize Internet advertising, especially in the vastly growing and virtually unstudied Web 2.0 realm. The future growth and success of e-commerce may rest on the utilization of Web 2.0 platforms to advertise to specific niche users. These new conduits to potential buyers allow for the most efficient marketing to date by incorporating highly personalized and rapidly dynamic advertising based on personal interests and consumer history. This study establishes that online auctions, travel research and podcasts are strong determinants of online purchasing; they provide easily accessible advertising channels. In particular, the podcast audience is a largely untapped, growing market that may prove lucrative for online firms. Podcast consumers are at least 50% more likely than non-consumers to have made an online purchase in the past week, are avid consumers of other communication technology and are active social networkers (Webster 2008). Because possession of an online deferred payment account was the strongest determinant of spending for all groups except the highest earning men, opening a deferred payment account should be encouraged by advertising on highly correlated forums for new and innovative products, online auctions, downloadable software and podcasts.

Drawing on the results of this analysis, electronic retailers may target their efforts and consider the cost-benefit analysis of each potential advertising project. Increasing online spending in the higher income brackets, particularly by men, is crucial to the growth of electronic commerce. This demographic is well versed in

technology and has a higher than average educational attainment. It is speculated that increasing online spending in this group can be achieved through selective online advertising integrated with preferred online activities such as online auctions and possibly podcasting. Their technological sophistication allows them to block many traditional advertising methods, so advertising via podcasts and online television programs could effectively target this attractive demographic (Nesbitt 2008).

The models presented here can also provide actual revenue estimates. For example, a college graduate on average would spend 0.24% more income online than does someone with just a high school degree and increasing time online of the highest male earners by 20 hours boosts spending by an average of 0.20%, or $55.00 per quarter for a user that makes $100,000 per year. If online retailers could increase the percentage of income spent online by the highest income bracket, their revenues would increase significantly. Projected revenue increases can then be weighed against planned advertising outlays; the resulting cost-benefit analyses are expected to reduce marketing costs. The possibilities for targeting niche users and attraction of males to novel and innovative products have implications for website design as well.

Nearly a decade has passed since a representative population of online buyers was last studied in detail, and this research provides a more focused picture of the current American online buyer. Women are achieving parity as online shoppers as their technological savvy increases; in some cases, women utilize the Internet at a slightly higher rate than men for professional information or enrichment (Pew Internet, 2008b). However, analysis of current data provides evidence that women still appear to be time-starved purchasers. There is a small but significant increase in the amount purchased online by women as their work hours increase. Women with high-speed connections, who research products and who participate in Internet auctions spend more online. By far, though, the largest effect on spending (for both women and men) comes from having an online deferred payment account.

Although the Internet can provide novel channels to reach perfectly targeted niche users, the ability to integrate Web 2.0 activities into online marketing remains largely unexplored. The potential to customize online content and marketing for specific demographics, including by gender, by Internet needs and by online interests, is particularly important given the distinct spending patterns for men and women and the markedly different behavior of men in the highest income bracket. Marketing to new cultural or underserved ethnic groups is another route that is expected to greatly expand future e-commerce, but specific websites and advertising must be developed to accommodate cultural differences in online perceptions and types of Internet usage (Chau et al., 2002; Singh et al., 2008). With a better understanding of contemporary American online behavior, this study points to directions for future research in order to utilizing new and robust marketing platforms to reach the growing base of people who utilize the Internet for entertainment.

Acknowledgment

References

Bakos, J.Y. (1997). Reducing buyer search costs: implications for electronic marketplaces. *Management Science*, 43(12), 1676-1692.

Bakos, Jannis. (2001). The emerging landscape for retail e-commerce. *Journal of Economic Perspectives,* 15(1), 69-80.

Bellman, S., G.L. Lohse & E.J. Johnson. (1999). Predictors of online buying behavior. *Communications of the ACM,* 42(12), 32-38.

Bhatnagar, A., S. Misra & H.R. Rao. (2000). On risk, convenience, and Internet shopping behavior. *Communications of the ACM,* 43(11), 98-105.

Brown, J.R. & A. Goolsbee. (2002) Does the Internet make markets more competitive? Evidence from the life insurance industry. *Journal of Political Economy,* 110(3), 481-507.

Brynjolfsson, E., Y. Hu & M.D. Smith. (2003). Consumer surplus in the digital economy: estimating the value of increased product variety at online bookstores. *Management Science*, 49(11), 1580-1595, 2003.

Chau, P. Y. K., M. Cole, A. P. Massey, M. Montoya-Weiss & R.M. O'Keefe. (2002). Cultural differences in the online behavior of consumers. *Communications of the ACM,* Vol. 45(10), 138-143.

Comiskey, D. (2006). Report: 2006 online retails sales to hit $100 billion. [Online] Available: http://www.e-commerce-guide.com.

Cummings, J.N. & R Kraut. (2002). Domesticating computers and the Internet. *Information Society,* 18(3), 221-231.

Donthu, N. & A. Garcia. (1999). The Internet shopper. *Journal of Advertising Research,* 39(3), 52-58.

Interactive Advertising Bureau. (2009). IAB Internet advertising revenue report. [Online] Available: http://www.iab.net/media/file/IAB_PwC_2008_full_year.pdf.

Gelman, A & Hill, J. (2006). *Data Analysis Using Regression and Multilevel/Hierarchical Models.* Cambridge, UK: Cambridge University Press.

Jupiter Research. (2007). [Ipsos online insight survey (06/07)]. Unpublished raw data.

Korgaonkar, P.K. & L.D. Wolin. (1999). A multivariate analysis of web usage. *Journal of Advertising Research,* 39(2), 53-68.

Lee, H.G, S.C. Lee, H.Y. Kim & R.H. Lee. (2003). Is the Internet making retail transactions more efficient?: comparisons of online and offline CD retail markets. *Electronic Commerce Research & Applications,* 2(3), 266-277.

Li, H., C. Kuo & M.G. Russell. (2006). The Impact of Perceived Channel Utilities, Shopping Orientations, and Demographics on the Consumer's Online Buying Behavior. *Journal of Computer-Mediated Communication*, 5(2).

Lohse, G.L., S. Bellman & E.J. Johnson. (1999). Consumer buying behavior on the Internet: findings from panel data. *Journal of Interactive Marketing,* 14(1), 15-29.

Menard, S. (2002). *Applied Logistic Regression Analysis* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Nie, N.H. & D.S. Hillygus.(2002). Where does Internet time come from? A reconnaissance," *IT & Society,* 1(2), 1-20.

Nielsen. (2008). Nielsen's three screen report. [Online] Available: http://www.nielsen.com/pdf/3_Screen_Report_May08_FINAL.pdf.

Nielsen//NetRatings. (2006). Over three-fourths of U.S. active Internet users connect via broadband at home in November, according to Nielsen//NetRatings. [Online] Available: http://www.nielsen-netratings.com.

Nesbitt, A. (2008). The podcast consumer in 2008. [Online] Available: http://www.digitalpodcast.com/podcastnews/2008/05/30/the-podcast-consumer-in-2008/.

Pew Internet, Inc. (2008a) Demographics of Internet users. [Online] Available: http://www.pewinternet.org/trends/User_Demo_2.15.08.htm.

Pew Internet, Inc. (2008b) "Latest trends: usage over time. [Online] Available: http://www.pewinternet.org/trends.asp.

Pew Internet, Inc. (2009a). Internet activities. [Online] Available: http://www.pewinternet.org/Data-Tools/Download-Data/~/media/infographics/Trend%20Data/January%202009%20updates/Internet%20Activities%20-%20all%20-%201%206%2009.jpg.

Pew Internet, Inc. (2009b). The mobile difference. [Online] Available: http://www.pewinternet.org/Reports/2009/5-The-Mobile-Difference--Typology/2-Introduction/3-The-Typology-and-Longitudinal-Analysis.aspx?r=1.

Singh, N., D.W. Baack, S.K. Kundu & C. Hurtado. (2008). U.S. Hispanic consumer e-commerce preferences: expectations and attitudes toward web content. *Journal of Electronic Commerce Research,* 9(2), 162-175.

Susskind, A.M. (2006). Electronic commerce and world wide web apprehensiveness: an examination of consumers' perceptions of the world wide web. *Journal of Computer-Mediated Communication,* 9(3).

Swaminathan, V., E. Lepkowska-White & B.P. Rao. (1999). Browsers or buyers in cyberspace? An investigation of factors influencing electronic exchange. *Journal of Computer-Mediated Communication,* 5(2).

Swinyard, W.R. & S.M. Smith. (2003). Why people (don't) shop online: a lifestyle study of the Internet consumer. *Psychology & Marketing,* 20(7), 567-597.

U.S. Census Bureau. (2010). Estimated quarterly U.S. retail sales (not adjusted): total and e-commerce. [Online] Available: http://www.census.gov/mrts/www/data/html/10Q1table4.html.

U.S. Census Bureau. (2009). E-stats - measuring the electronic economy. [Online] Available:http://www.census.gov/eos/www/ebusiness614.htm

WebSiteOptimization.com. (2008). July 2008 bandwidth report. [Online] Available: http://www.websiteoptimization.com/bw/0807/.

Webster, T. (2008). The podcast customer revealed: The Arbitron/Edison Internet and multimedia study," Edison Media Research.

Zhou, L., L. Dai & D. Zhang. (2007). Online shopping acceptance model – A critical survey of consumer factors in online shopping. *Journal of Electronic Commerce Research,* 8(1), 41-62.

Notes

Note 1. Heterosckedasticity was not present in the results; the weighting variable is included to make the mean data and standard error for each user representative of data for the online population.

Note 2. The weight variable is based on 12 demographic variables. The idea behind the weight is to ensure that the sample is representative of the US online adult population, according to Jupiter's definition of what the demographics of that population are. Respondents are invited to take the survey based on specific demographic quotas, and then the weight is applied to the data to ensure that the distributions are precisely in line with the same demos." (Jupiter Research 2007)

Note 3. In this survey effort, Jupiter Research worked with its research partner, Ipsos Insight…Ipsos Insight is one of the largest market research companies in the US and maintains a general research panel of 400,000 households. Ipsos Insight also has access to the Ipsos US online panel, which comprises two million Internet users." (Jupiter Research 2007)

Note 4. Predicted values are determined by applying the participant's survey answers (such as age, income, high-speed connection, etc.) to the coefficients from the first regression.

Note 5. This describes an online user who is 40 years old, a college graduate, makes $35,000 per year, works 40 hours per week, uses the Internet 5 hours per week, watches television 10 hours per week, owns a credit card, has a high-speed Internet connection and of the activities surveyed, uses only email and search engine.

Note 6. This describes an online user who is 40 years old, a college graduate, makes $100,000 per year, works 40 hours per week, uses the Internet 20 hours per week, watches television 20 hours per week and uses the Internet for every variable surveyed.

Note 7. Actual: these values are based on descriptive statistics, in this case they are the actual differences between men and women's online spending, they are derived directly from the dataset, not from the model's results.

Note 8. Model derived: these values are obtained through the model by altering the specified variable (education) and holding all others constant.

Table 1. Description of Variables in Models and Key Statistics

DEPENDENT VARIABLE		DEFINITION OF DEPENDENT VARIABLE
y_1	Purchase	Has purchased a good or service online within the last year (1) or not (0)
		n = 3580; 72% yes, 28% no
y_2	Spending	Percentage of income spent via online purchasing in the last three months (the amount spent online in the last three months [median of bracketed range] by household income for the last three months [median of bracketed range divided by four].
		n = 2539; mean [SD] = 0.682% [1.603%]
CATEGORY AND NAME OF INDEPENDENT VARIABLE		DEFINITION OF INDEPENDENT VARIABLE
Demographic		
x_1	Age	Median age of each bracket is applied to data set: 21 (18-24), 29.5 (25-34), 39.5 (35-44), 49.5 (45-54), 55 (55+).
		Mean [SD] = 37.1 [13.9]
x_2	Gender	Male (0) or female (1).
		50% male, 50% female
x_3	Educational Attainment	Highest level of education the respondent completed (1) Grade school (2) Some high school (3) Graduated high school (4) Some College (5) College graduate (6) Post-graduate degree
		The average respondent has completed some college. 6% some high school, 26% graduated high school, 28% some college, 28% graduated college, 12% post-graduate degree
Socioeconomic		
x_4	Household Income	Median value from the bracketed range applied to the data set $ 35K (<$35K), 39.5K (35K-44K), 52K (45K-59K), 67K (60K-74K), 87.5K (75K-100K), 100K (100K+).
		Mean [SD]= $59,130 [$29,891]
x_5	High-speed Connection	Dial-up or no connection at home (0) or high-speed (1).
		63% high-speed connections, 34% dial-up connections, 2% without connection and 1% did not know their connection type
x_6	Credit or Debit Card Ownership	Possession of credit card or debit card that can be used in online purchasing (1) or does not own any form of online payment method (0).
		84% own payment card, 16% without payment card. (This variable is not used in Model 2 since an insignificant number of participants did not possess a payment card)
x_7	Online Payment	Has online payment account such as PayPal™ (1) or not (0).
		37% yes, 63% no
x_8	Online Deferred Payment	Has online deferred payment account (1) or not (0).
		5% yes, 95% no. (This variable is not used in Model 1 because it assumes user has purchased online)
Internet Usage		
x_9	Weekly Internet Usage	Average hours spent online weekly by the user.
		Mean [SD] = 19.3 [21.7]
Communication		
x_{10}	Email	User has sent or received email in last month (1) or not (0).
		90% yes, 10% no
x_{11}	Instant Messenger	User has used AOL Instant Messenger, ICQ, Yahoo or MSN Messenger, or similar instant messaging services in the last month (1) or not (0).
		37% yes, 63% no
Information Retrieval		
x_{12}	Product Research	User has researched product or services online in the last year (1) or has not (0).
		52% yes, 48% no
x_{13}	Search Engine	User searched for information using a search engine within the last month (1) or has not (0).
		78% yes, 22% no
x_{14}	Downloaded Software	User has downloaded software programs for their personal computer in the last year (1) or not (0).
		25% yes, 75% no
x_{15}	Investigated Travel	User has investigated travel arrangements (availability or pricing) online in the last month (1) or not (0).
		41% yes, 59% no
x_{16}	Stock Quotes	User has checked stock quotes online in the last month (1) or not (0).
		14% yes, 86% no
Shopping Behavior		
x_{17}	Online Auction	User has sold or bid for products in an online auction within the last month (1) or has not (0).
		21% yes, 79% no
		User posted classified ads online (e.g. Craig's List, AutoTrader™, etc.) in the last month (1) or has not (0).

x_{18}	Classified Ads	8% yes, 92% no
Entertainment		
x_{19}	Podcast	User has listened to or downloaded a podcast within the last month (1) or not (0).
		12% yes, 88% no
x_{20}	Online Gaming	User played games online such as action games, fantasy, flight simulators, etc. in the last month (1) or has not (0).
		27% yes, 73% no
Social Networking		
x_{21}	Social Networks	User has visited social networking sites like MySpace™, Facebook™, etc. in the last month (1) or has not (0).
		36% yes, 64% no
x_{22}	Online Dating	User has used an online dating service or viewed personal ads in the last month (1) or has not (0).
		15% yes, 85% no
x_{23}	Blogs	User has read a blog in the last month (1) or has not (0).
		26% yes, 74% no
Product Perceptions		
x_{24}	Good Value	User prefers to buy products that are a good value for the money (1) or not (0).
		78% yes, 22% no
x_{25}	New/Innovative	User prefers to buy products that are new and innovative (1) or not (0).
		16% yes, 84% no
Alternative Activities		
x_{26}	Weekly Work	Average hours user works weekly.
		Mean [SD] = 29.6 [27.2]
x_{27}	Weekly Television	Average hours user watches television weekly.
		Mean [SD] = 16.9 [17.6]

Table 2. Results from Regressions

Model		Adjusted R-Squared	F Statistic (p value)	Number of Observations	Degrees of Freedom
Model 1	Purchase	0.237	1115.76 (p<0.001)	3580	3553
Model 2	Spending	0.194	23.277 (p<0.001)	2539	2512
Model 2 with Partitioned Data	Spending by Men	0.315	23.239 (p<0.001)	1213	1187
	Spending by Women	0.086	5.473 (p<0.001)	1197	1171
	Spending by Men with Household Incomes < $35K	0.667	27.000 (p<0.001)	312	287
	Spending by Men with Household Incomes > $100K	0.291	7.028 (p<0.001)	226	201
	Spending by Men Aged 45-54	0.791	45.250 (p<0.001)	281	256

Table 3. Results from Model #1 & #2 (Demographic Variables Only).

Model		Adjusted R-Squared	F Statistic (p value)	Number of Observations	Degrees of Freedom
Model 1	**Purchase**	0.033	123.242 (p<0.001)	3580	3576
Model 2	**Spending**	0.021	17.415 (p<0.001)	2539	2535

	Model 1 Purchase	Model 2 Spending
Constant	-1.419***	3.341***
Demographic		
Age	0.012***	0.001
Gender	0.217**	-1.272**
Education	0.316***	0.235*

*   0.01 < p value ≤ 0.05

**   0.001 < p value ≤ 0.01

***   p value ≤ 0.001

Table 4. Coefficients and Significance from Regressions Using Partitioned Data

	Model 1	Model 2					
		2A	**2B**	**2C**	**2D**	**2E**	**2F**
	Purchase	Spending	Spending by Men	Spending by Women	Spending by Men <$35K	Spending by Men > $100K	Spending by Men 45-54
Constant	-3.683***	0.684***	0.255	0.750***	-1.033	-1.725**	0.481
Demographic							
Age	0.006	0.002	0.007	-0.003	-0.008	0.009	♦
Gender	0.290**	-0.114*	♦	♦	♦	♦	♦
Education	0.069	0.120***	0.221***	-0.015	0.573***	0.259**	0.079
Socioeconomic							
Income	0.128***	-8E-006***	-8E-006***	-6E-006***	♦	♦	-4E-006
High-Speed Connection	0.183	0.096	0.153	0.205***	-0.429*	0.553**	-0.330*
Credit Card	1.279***	⊗	⊗	⊗	⊗	⊗	⊗
Online Payment	0.637***	-0.048	-0.155	0.040	-0.065	-0.179	0.029
Online Deferred Payment	⊗	1.797***	2.973***	0.498***	4.627***	-0.028	3.614***
Internet Usage							
Weekly Usage	0.003	0.005**	0.001	0.003	0.003	0.011*	0.001
Communication							
Email	0.588***	-0.247*	-0.516**	0.158	-0.237	0.211	-0.036
Instant Messenger	-0.133	0.235***	0.433***	-0.085	0.703***	-0.212	0.478*
Information Retrieval							
Product Research	0.471***	-0.090	-0.101	0.105	-0.542***	-0.147	-0.524**
Search Engine	0.588***	0.125	0.155	0.046	-0.391	0.093	0.119
Download	0.273*	0.112	0.211*	-0.098	0.125	0.050	0.645***
Investigate Travel	0.426***	-0.107	-0.148	0.057	-0.062	0.369*	0.054
Stock Quotes	0.215	0.162*	0.066	0.473***	-0.339	0.230	0.081
Shopping Behavior							
Online Auction	0.877***	0.125*	0.125	0.197**	0.513**	0.696***	-0.134
Classified Ads	-0.008	-0.084	0.029	-0.226*	0.798**	-0.205	0.230
Entertainment							
Podcast	0.403*	0.149*	0.086	0.089	-0.106	0.254	-0.131
Online Gaming	-0.090	-0.233***	-0.343***	-0.089	-0.192	-0.427*	-0.513*
Social Networking							
Social Networks	0.039	-0.126*	-0.129	-0.149	-0.345	-0.296	-0.743***
Online Dating	0.312	0.310***	0.336***	0.057	0.263	0.483*	0.689***
Blogs	0.318	-0.020***	-0.253**	0.100	0.260	0.101	-0.329
Product Perception							
Good Value	0.111	-0.281***	-0.320**	-0.298***	0.184	-0.656***	0.304
New/Innovative	0.391**	0.505***	0.667***	0.153	0.753***	0.439***	1.314***
Alternative Activities							
Weekly Work	-0.001	0.001	-0.001	0.003**	-0.011*	-0.006	-0.003
Weekly Television	0.005	-0.003	-0.007*	0.000	-0.006	0.002	-0.010

⊗   The variable Online Deferred Payment was not included in Model 1 because it is assumes that the user has made an online purchase. The variable Credit Card was only used in Model 1 because there were an insignificant number of users in the dataset who lacked a credit card .

♦   These variables were not included when the data were partitioned by gender and/or income.

*   0.01 < p value ≤ 0.05,

**   0.001 < p value ≤ 0.01,

***   p value ≤ 0.001

Service Quality, Customer Satisfaction and Loyalty: A Test of Mediation

Rahim Mosahab, PhD Candidate

School of Management, Universiti Sains Malaysia (USM)

E-mail: rmosahab@yahoo.com (corresponding author)

Osman Mahamad, Professor

Graduate School of Business, Universiti Sains Malaysia (USM)

E-mail: osman@usm.my

T. Ramayah, Associate Professor

School of Management, Universiti Sains Malaysia (USM)

E-mail: ramayah@usm.my

Abstract

The present research was conducted in a bank in Tehran, Iran, in 2009/2010. This report is the outcome of a field research, which aimed to determine the quality of services offered by Sepah Bank, and also to study the relationship between the service quality, satisfaction and loyalty. In this research, the service quality standard model has been used for evaluation of service quality, Gremler and Brown (1996) model with some revision was used for evaluating the loyalty, and the instrument offered by Bitner and Hubbert (1994) was used for evaluation of customer satisfaction. The focus of this research is a Sepah Bank branch around Fatemi St., Tehran, Iran, and 147 customers of this bank were sampled. The results of this research show that in all aspects, customers' expectation, are higher than their perceptions of the Bank's operation, and in fact the quality of offered services is low. Besides, this research findings show that the customer satisfaction plays the role of a mediator in the effects of service quality on service loyalty. These findings are further explored.

Keywords: Service quality, SERVQUAL, Satisfaction, Service loyalty

1. Introduction

The relationship between service behavior and service quality has proven its role and importance in management/marketing (Valarie et al., 1996; Heskett & Sasser, 2010; Hutchinsona et al., 2009). The concepts of service quality and service satisfaction have been highly considered and used in marketing texts and activities, during previous decades. Marketing researchers have praised the advantages of satisfaction and quality, and have mentioned them as indices of an organization competitive benefit (Ruyter, 1997). On the other hand, service loyalty is one of the most important structures in service marketing, due to its final effect on customers' repeated purchases, and in fact, those loyal customers who purchase repeatedly are considered as the base of any business (Caruana, 2002). Although these concepts have been used so many times in the marketing literature, but the relations between these three concepts still remain ambiguous. Therefore, this research intends to study the relation of these three concepts.

1.1 SERVICE QUALITY

The fact that the perceived quality of the product is becoming the most important competition factor in business world has been the reason of naming the present business era as "Quality Era" (Peeler, 1996). Consequently, service marketing intellectuals and researchers have offered several metaphors of this issue. For example, Berry (cited in Kandampully, 1998, p 423) calls it the most powerful competition weapon and Clow (1993) calls it the organization's life-giving blood.

Quality is a multi-dimensional phenomenon. Thus, reaching the service quality without distinguishing the important aspects of quality is impossible. In his discussion of service quality, Gronroos (2000) refers to three dimensions of output technical quality, service performance quality, and organization's mental picture. Also, Lehtinen and Lehtinen (cited in Harrison, 2000) have referred to dimensions of physical quality, interactive

quality, and organizational quality as three dimensions of service quality. Although these attempts have had a major role in division of service quality into process quality and output quality, but they lack enough details. On this basis, Zeithaml et al. (1996) have referred to ten dimensions of service quality in their primary researches. But, in their further researches, they found a strong correlation among those dimensions. Thus, they combined these dimensions and applied the fivefold dimension of Reliability, Responsiveness, Assurance, Empathy and Tangibles as a basis for making a tool for testing the service quality, known as SERVQUAL. In their researches, they emphasize that SERVQUAL is a lasting and reliable scale of service quality (Parasuraman et al., 1994). They also said that this tool is applicable in an extensive spectrum of service domains such as financial institutions, libraries, hotels, medical centers and…, although some of its components should be rephrased, or more components should be added to it. Many researchers have tried to use this tool in different service domains (see table 1).

Services are increasingly becoming a larger portion of many organizations' regionally, nationally, and globally and are considered as a tool for revenue streams. Today's knowledge intensive services businesses require reliable methods of measurement, assessment, and improvement (Spohrer & Maglio, 2008). Service quality is determined by calculating the difference between two scores where better service quality results in a smaller gap (Landrum, et al., 2008). Johnston, et al. (1997) did comprehensive empirical experiments on service quality dimensions offered by Parasuraman, et al. (1985 & 1988) in ten service organizations in England. At first, they presented a list of 12 factors, and then with more researches done, they offered a list of 18 factors. In addition, many researchers have presented different models for testing the quality of banking services, by inspiring from SERVQUAL model.

Avkiran (1994) has introduced a model consisting of four dimensions (personnel's contact, reliability, communication, and access to services), and seventeen components. Also, considering the difference between Islamic banking and Usury banking in nature, Othman & Own (2001) have offered a model called CARTER, consisting of Complaint, Assurance, Reliability, Tangibles, Empathy, and Responsiveness which includes 34 components.

1.2 CUSTOMER SATISFACTION

Customer satisfaction is a key factor in formation of customer's desires for future purchase (Mittal & Kamakura, 2001). Furthermore, the satisfied customers will probably talk to others about their good experiences. This fact, especially in the Middle Eastern cultures, where the social life has been shaped in a way that social communication with other people enhances the society, is more important (Jamal & Naser, 2002). Although satisfaction has been defined as the difference between expectation and performance, but there are differences between quality and satisfaction. For example, Parasuraman et al. (1991) say that satisfaction is a decision made after experience while quality is not the same. On the other hand, in satisfaction literature, expectations for goods is "would", while in service quality literature, expectations for goods is "should".

Cadotte & Turgeon (1988) have introduced another group of factors known as neutral factors. Besides, Liljander & Strandvik (1993) say that experience is not needed for evaluating service quality, and service can be evaluated on the basis of the knowledge about service provider, while satisfaction is an inner view, resulted from customer's own experience from the service. Finally, several researches have been done on the relation between service quality and satisfaction: findings of some of these researches show that satisfaction results in service quality (Parasuraman et al., 1988). Also, the research conducted by Sureshchandar et al. (2002) shows that, there is a two-way relation between satisfaction and service quality.

1.3 SERVICE LOYALTY

Many service organizations have developed customer loyalty programs as a part of relations development activities. Customer loyalty is a complicated concept. Oxford Dictionary defines loyalty as a state of true to allegiance. But the mere repeated purchase by customers has been mixed with the above mentioned definition of loyalty. In service domain, loyalty has been defined in an extensive form as "observed behaviors" (Bloemer et al., 1999). Caruana (2002) argues that behavior is a full expression of loyalty to the brand and not just thoughts.

However, behavior standards (such as repeated purchase) have been criticized, due to the lack of a conceptual basis of a dynamic process (Caruana, 2002). For example, the low frequency of repeated purchase of a special service may be resulted from different situation factors, such as non-availability or absence of a provider. According to this point of view, loyal behavior cannot offer a comprehensive conception of fundamental causes of loyalty. Additionally, repetition may be due to different restrictions resulted from the market. Consequently, the loyalty of this type of customers mainly differs from the loyalty of those customers who seriously support a product, and do have psychological bond with a product and a company. Therefore, customer's loyalty was

considered as an attitudinal structure. For example, this issue appears in the tendency to advise the service offer to other customers. Finally, in addition to behavioral and attitudinal approaches, another approach to customer's loyalty, called cognitive approach, was introduced. The operational definition of this approach often refers to the first product or service which comes to the mind of a person, while making decision for purchase. Meanwhile, in their definition of this approach, Ostrowski et al. (1993) and Bloemer (1999) refer to the first product or service that a person chooses among products and services.

1.4 REVIEW OF SOME ACCOMPLISHED STUDIES

Despite the importance of service quality, so far a few researches have been done in this field in Iran, but numerous researches have been accomplished outside Iran. At least 293 important articles have been written from 1976 to 1995 on service quality. Meanwhile, if we consider articles in which service quality forms a part of the article, this number will be 4000 articles. These numbers clearly show the importance of service quality, and the researchers' attentions to this topic (Philip & Hazlett, 1997).

(1) Bloemer, et al. (1998) have presented a model to show how the mental picture, service quality, and customer satisfaction influence customer loyalty. Findings of this research show that the mental picture indirectly and through service quality, influences loyalty. On the other hand, service quality influences loyalty both directly and indirectly (through satisfaction). Besides, this research showed that the reliability and position in the market are relatively important stimulants affecting the loyalty to bank services.

(2) On the relationship between customer satisfaction, service quality and service loyalty in Malta's banks, Caruana (2002) concluded that customer satisfaction plays a mediator role in the effect of service quality on service loyalty. In fact, service quality affects service loyalty through customer satisfaction. In addition, results of this research show that service quality is an important gateway to customer satisfaction, and explains 53% of the variance.

(3) Yongyui (2003) has presented a model for the relationship between service quality and bank's reputation. According to the findings of this research, the fivefold dimensions of service quality have direct effect on the bank's reputation. In addition, on the basis of this research's findings, the bank's reputation plays an important role in determination of purchase, repeated purchase, and customer loyalty. This issue has much more importance in banking industry, because service quality cannot be accurately evaluated before purchasing.

(4) On customers' abandonment behavior in America's banks, Chakravarty (2003) found that there is a meaningful negative relation among service quality dimensions, responsiveness, empathy, and reliability, with customer's tendency to abandon the bank. This study in India's banks show that the concept of service quality in developing countries is a multi-dimensional structure, and in fact the results clearly show that SERVQUAL model provides more evaluating information in relation with service quality gaps, than SERVPERF scale.

1.5 The conceptual model of the research

The following conceptual model has been used in this article.
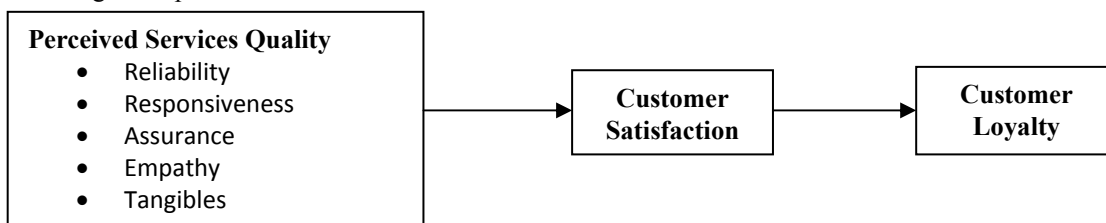
Research Conceptual model

From the above mentioned model the following main hypothesis are developed:

H1- Perceived service quality is positively associated with customer satisfaction.

H2- Perceived service quality is positively associated with customer loyalty.

H3- Customer satisfaction is positively associated with customer loyalty.

H4- Customer satisfaction mediates the relationship between perceived service quality and customer loyalty.

1.6 Research questions

This article attends to find answers to the following questions:

(1) Is there any meaningful difference between customers' expectations and their perception about Sepah Bank performance?

(2) What is the relation between three concepts of service quality, customer satisfaction and loyalty?

(3) What is the relation between five dimensions of service quality, satisfaction and loyalty?

(4) What is the relation between resulted and processed dimensions of satisfaction and loyalty?

2. Research Methodology

The objective of this research is to clarify the relationship between three variables of service quality, customer satisfaction, and customer loyalty and to describe the understudy conditions and phenomena, in order to better understanding of present conditions, and helping the decision making process. This research can be categorized as descriptive research based on the method of obtaining the considered data. Since these data are made for studying the distribution of statistical population characteristics through sampling of population, this research is a survey done on the basis of cross sectional method.

2.1 Information gathering tool

Based on the literature review and the research design, a questionnaire was prepared consisting of five sections, which the first part was on specifications of the respondent, second part on the fivefold dimensions preference, third part for evaluation of expectations, fourth part for evaluating Bank Sepah's performance from customers view, and finally the fifth part including questions related to customers loyalty and satisfaction. In this research, SERVQUAL has been used for designing questions related to service quality, Gremler and Brown's tool (1996) for evaluating the loyalty, and for customer satisfaction evaluation, a tool offered by Bitner and Hubbert (1994) has been used. The above mentioned tools have been used in many researches conducted on service quality, thus these tools can be considered highly reliable.

To test the evaluating tool reliability, the designed questionnaire was at first distributed between about 26 customers of the bank, and was analyzed after being collected. The results of the primary sample show that Cronbach alpha (α) index is 0.94, indicating high reliability.

2.2 Statistical population and sample

The statistical population of this research is customers of a Sepah Bank branch in Tehran, Iran. Since the statistical population was unlimited, therefore the following formula was used to get the size of the sample:

$$n = \frac{Z^2_{\alpha/2}\, \delta^2}{E^2}$$

The variance of the obtained answers from the primary sample was 880.87, and by putting it in the above mentioned formula, the reliability level (α) was 95 percent, and estimate accuracy (E) was 5, and the sample size was 136. But since there was a probability that some of questionnaire would not be returned, 250 questionnaires were distributed, which finally 147 questionnaires were collected and analyzed.

3. Data Analysis

At first, descriptive statistics (results have been shown in table 2) was used to study the characteristics of statistical sample, and perceptive statistics (pair student T test, Spearman correlation index, Beta (ß) meaningful level test in linear regression and…) was used for analyzing the questionnaires.

Question 1: Is there any meaningful difference between customer's expectations and their perception about Sepah Bank performance in each of the fivefold dimension, and in total?

As shown in table 2, the respondents' expectations in all fivefold dimensions, and in total, is more than Bank's performance in one dimension. Since these means are merely related to the mentioned sample, we have done the T test to study the meaningful explanation of their difference. The results of T test have been brought about in pair, in table 3. Considering the fact that the meaningfulness level in all dimensions is less than 0.05 of error level (and even 0.01), zero premises (there is no meaningful difference between expectation and performance) are failed. In other words, there is a meaningful difference between customer's expectation and the Bank's performance in each of dimensions separately and totally, and customer's expectation in all cases is more than Bank's performance. Thus, it can be said that the service quality is low, totally, and each of the discussed dimensions.

Question 2: What is the relation between three concepts of service quality, customer's satisfaction and loyalty? To do this, following three regression models should be tested:

(1) Mediator variable regression (customer satisfaction) on independent variable (service quality): in this test, satisfaction will be considered as dependent variable, and service quality as independent variable.

(2) Dependent variable regression (loyalty) on independent variable (service quality): In this test, loyalty will be considered as dependent variable, and service quality as in dependent variable.

(3) Dependent variable regression (service loyalty) on independent variable (service quality), and mediator variable (customer satisfaction): Table 4 shows that in this test, loyalty is considered as dependent variable, and service quality and satisfaction as independent variable.

As shown in table 4, for the first model, R² = 0.43 was obtained, and it can be said that 43 percent of the dependent variable changes is explained by the model. In the second model (table 9), R² = 0.458 was obtained, thus almost 45 percent of the dependent variable changes is shown by the model. As shown, R² = 0.80 was obtained in the third model, and it can be considered that 80 percent of the dependent variable changes is explained by the model, in other words, a very high percentage of dependent variable changes are identified by the mentioned model. As a result, customer satisfaction partially mediates the relationship between service quality and customer loyalty.

Now, the question is that is there any linear relation between the variable pair understudy in the model? To answer this question, single factor variance analysis test (ANOVA) is used. Data mentioned in table 4 shows:

First model: Considering the test statistic F = 112.67 and also zero meaningfulness level of the test, it can be concluded that there is a meaningful linear relation between the two variables.

Second model: The test statistic, F = 122.41 and test meaningfulness level is zero. Therefore, since the meaningfulness level is less than error level, zero assumption is denied, and the relation between the two variables is meaningful.

Third model: The test statistic F = 292.56 and test meaningfulness level is zero. This means that the zero assumption in 0.05 level is denied, in other words, there is a meaningful linear relation between dependent variable (Y) and at least one of the independent variables.

Therefore, it can be said that although both variables have a meaningful linear relation with the loyalty variable, but the satisfaction variable has a stronger relation with loyalty. Considering the positive sign of Beta index, this relation is in one direction, and loyalty is increased considerably with the increase of satisfaction.

In general, considering the applied models, the third model is better, since the determination index in this model is a higher figure compared with other models. Although the determination index in the second model is close to the third one, but compared with the third model, it is less appropriate, since one of the independent variables has been ignored in this model.

Question 3: What is the relation between five dimensions of service quality, satisfaction and loyalty?

This part will study the relation of each one of service quality dimensions with satisfaction and loyalty. To study the amount of the relation between each one f service quality dimensions with satisfaction and loyalty, Pearson correlation index is used. In tables 5 and 6, the correlation indices of satisfaction and loyalty have been calculated with five dimensions. Considering the first column in both tables, it can be said that all variables have a meaningful linear relation with satisfaction variable, as well as loyalty (meaningfulness level in all cases is less than the error level), and the highest relation is between empathy variable with satisfaction and loyalty. The positive sign of correlation indices shows direct relation of variables, so that in all five dimensions, with the increase of service quality, satisfaction and loyalty will be increased.

Question 4: What is the relation between resulted and processed dimensions, satisfaction and loyalty?

The fivefold dimensions of service quality can be considered from another point of view. In fact, they can be divided into two more general categories of resulted and processed. The resulted dimension includes reliability dimension, and the processed dimension includes other dimensions (tangibles, responsiveness, assurance, and empathy). Now, the question to be answered is which dimension is more important in attracting customer's satisfaction and loyalty? For his reason, Pearson correlation index is used.

Table 7 and 8 show the correlation indices of satisfaction and loyalty variables with resulted and processed dimensions. This tables show that the two variables have a positive meaningful linear relation with satisfaction and loyalty variables, so that the higher service quality in each of the dimensions, the more satisfaction and loyalty.

But in both cases, the processed dimensions have more correlation with satisfaction and loyalty. Therefore, although the result of service received by customers may not be appropriate, but it does not mean that customers consider service quality totally weak. On the other hand, high correlation between the processed dimension and satisfaction and loyalty shows that service challenges have played a more important role in customer's assessment from service quality. Thus, the process of service offer is a good opportunity for increasing the service quality in the view of customers.

4. Conclusion

The results of this research show that in all fivefold dimensions of service quality and also in total, customers' expectations are beyond their perceptions of the bank performance. In fact, findings of this research show that although in all fivefold dimensions of service quality Sepah Bank's performance has been higher than average limit, but its service quality does not satisfy customers' expectations.

Also, it was expected that service quality would be one of the determinants of satisfaction and loyalty. In fact, nearly 43 percent of customer's satisfaction change is explained by service quality. On the other hand, service quality has a direct relation with loyalty, and nearly 45 percent of loyalty changes can be explained by service quality changes. Another point is that if the satisfaction variable enters the model, the resulted determination index will be higher in figure than other cases (0.803). This figure means that nearly 80 percent of loyalty changes can be explained by satisfaction and service quality, although satisfaction plays a more important role in this relation.

In addition, findings of this research show that there is a positive and meaningful relation among all fivefold dimensions of service quality with satisfaction and loyalty, which in both cases assurance and tangibles have the most and the least relation with satisfaction and loyalty. In other words, it sees that tangibles can be considered as health factors, and assurance as motivational factor. In addition, the fivefold dimensions of service quality can be observed from another point of view. In fact, these dimensions can be divided into two more general dimensions of resulted and processed. The resulted dimension includes reliability dimension, and the processed dimension includes other dimensions (tangibles, responsiveness, assurance, and empathy). Findings of this part too, show that both resulted and processed dimensions have a positive and meaningful relation with satisfaction and loyalty. But the important point is that there is significant relation between the processed dimensions and satisfaction and loyalty.

This point is important because although the final output may not satisfy customer's satisfaction, but it does not necessarily mean customer's dissatisfaction. In fact, service encounter plays an important role in customer's satisfaction and loyalty. Considering the above mentioned findings, the Bank's manager should try to gradually reduce the gaps in the first step, and should attempt to make this gap positive, and to surpass customers' expectations, in the next step.

5. Limitation

This research was conducted in one branch of Sepah Bank, thus may not be generalizable to other branches. Therefore, more branches need to be investigated. It is also suggested that other related factors of service quality such as internal marketing, HR, organizational behavior and leadership to be included in the future researches.

References

Avkiran, N, K. (1994). Developing an instrument to measure customer service quality in branch banking. *International Journal of Bank Marketing.* 12 (6), 10-18.

Bitner, M. J. & Hubbert, A. R. (1994). Encounter satisfaction versus overall satisfaction versus quality: the customer's voice. service quality: new directions in theory and practice, *Thousand Oaks, CA: Sage(In Rust, R.T., & Oliver, R.L. (Eds.),* 72-94.

Bloemer, J. (1998). investigating derivers of bank loyalty: the complex relationship between image, service quality and satisfaction. *International Journal of Bank Marketing,* 16(7), 276-286.

Bloemer, J. (1999). Linking perceived service quality and service loyalty: a multi-dimensional perspective. *European Journal of Marketing,* 33(11, 12), 1082-1106.

Cadotte, E., & Turgeon, N. (1988). Key Factors in Guest Satisfaction, *Cornell Hotel and Restaurant Administration Quarterly*, 28, 44-51

Caruana, A. (2002). Service Loyalty: The Effects of Service Quality and the Mediating role of Customer Satisfaction. *European Journal of Marketing*, 36(7), 811-828.

Chakravarty, S. (2003). Relationships and individual's bank switching behavior. *Journal of Economic Psychology,* 1-21.

Clow, K, E. (1993). Building a competitive advantage for service firms. *International Journal of Service Marketing,* 7(1), 22-32.

Gremler, D. D. & Brown S.W.(1996). Service Loyalty: Its Nature, Importance, and Implications: in Advancing Service Quality: A Global Perspective. *International Service Quality Association,* 171-180.

Gronroos, C. (2000). Service management and marketing. John Wiley & sons Ltd.

Heskett, J. L., & Sasser, W. E. (2010). The Service Profit Chain: From Satisfaction to Ownership, Handbook of Service Science, *Publisher Springer*

Hutchinsona, J., Laib, F., & Wang, Y. (2009). Understanding the relationships of quality, value, equity, satisfaction, and behavioral intentions among golf travelers. *International Journal of Tourism Management*, 30(2), 298-308

Jamal, A., & Naser, K. (2002). Customer satisfaction and retail banking: an Assessment of Some of the Key Antecedents of Customer Satisfaction in Retail Banking. *International Journal o Bank Marketing,* 20(4), 146-160.

Johnston, R. (1997). Identify the critical determinants of service quality in retail banking: Importance and Effect. *International Journal of Bank Marketing,* 15(4), 111-116.

Kandampully, J. (1998). Service Quality to service loyalty: a relationship which goes beyond customer services. *Total Quality Management & Business Excellence,* 9(6), 431-443.

Landrum, H., Prybutok, V. R. Kappelman, L. A., & Zhang, X. (2008). SERVCESS: A parsimonious instrument to measure service quality and information system success. *The Quality Management Journal,* 15(3), 17-25.

Liljander, V., & Strandvik, T. (1993). Estimating Zones of Tolerance in Perceived Service Quality and Perceived Service Value, *International Journal of Service Industry Management*, 4(2), 6-28.

Mittal, V., & Kamakura, W.A. (2001). Satisfaction, Repurchase Intent, and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics, *Journal of Marketing Research,* Vol. 38(1), 131-142.

Othman A.Q., & Owen L. (2001). Adopting and measuring customer service quality (SQ) in Islamic Banks: A Case Study in Kuwait Finance House. *International Journal of Financial Services,* 3(1), 1-26.

Parasuraman, A., Zeithaml, V. & Berry, L (1988). SERVQUAL: A multiple item scale for measuring customer perceptions of service quality. *Journal of Retailing,* 64(1), 12-40.

Parasuraman, A., Berry, L.L & Zeithaml, V (1985). A conceptual model of service quality and the implications for future research. *Journal of Marketing Management,* 49, 41-51.

Parasuraman, A. & Berry, L. L. (1991). Marketing for Services: Competing through Quality. *The Free Press, New York, NY.*

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1994). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing,* 70(3), 201-230.

Peeler, G. H. (1996). Selling in the quality era. *Blackwell Business, USA.*

Philip, G. & Hazlett, S. (1997). The Measurement of service quality: a new p-c-p attributes model. International *Journal of Quality and Reliability Management,* 14(3), 260-286.

Ruyter, K. (1997). Measuring service quality and service satisfaction: an empirical test of an integrative model. *Journal of Economic Psychology,* 18, 387-406.

Spohrer, J. & Maglio, P. (2008). The emergence of service science: Toward systematic service innovations to accelerate co-creation of value. *Production and Operations Management,* 17(3), 238-246.

Stewart, R. (1999). Measuring service quality: current thinking and future requirements. *Marketing Intelligence & Planning,* 17(1), 21-32.

Valarie, Zeithaml, Berry & Parasuraman (1996) The Behavioral Consequences of Service Quality, *The Journal of Marketing,* 60(2), 31-46

Yonggui, W. (2003). The Antecedents of service quality and product quality and their influences on bank reputation: evidence from the banking industry in China. *Managing Service quality,* 13(1), 72-83.

Zeithaml, V. A., Berry, L.L. & Parasuraman, A. (1996). The behavioural consequences of service quality. *Journal of Marketing Management,* 60(No. April), 31-46.

Table 1. Examples of SERVQUAL application in different service domains

Field	some accomplished researches
Professional services	Bojanic(1991),Carman, James (2000)
Medical services	Swartz & Brown (1989); Lam (1997)
Tourism	Tribe & Snaith (1998); Atilgan, et al. (2003)
Libraries	Nitecki (1996); Coleman, et al. (1997)
Information systems	Kettinger & Lee (1994)
Banks	Madhukar G. Angur, et al. (1993)
Restaurants and hotels	Min, Hokey, et al. (2002)
Government services	Mike Donnelly, et al. (1995)
Educational centers (universities and …)	Pariseau, Susan E., Mc Daniel, J.R

Adapted from (Stewart, 1999)

Table 2. Descriptive statistics results

Characteristics Description		Quantity		Percentage
Gender	Male	116	79	
	Female	31	21	
Age	Up to 30 years	17	12	
	31 to 40 years	112	76	
	41 to 50 years	18	12	
Education	Diploma and below	100	63	
	Associate	21	14	
	Bachelor	28	19	
	Master and above	6	4	
Activity background With Bank Sepah	Up to 7 years	38	26	
	8 to 11 years	22	15	
	12 to 15 years	54	37	
	More than 16 years	24	16	
Account type	Interest-free savings	71	48	
	Current interest-free	123	84	
	Short-term deposit	43	29	
	Long-term deposit	25	17	
	Credits	10	7	

Table 3. Pair samples test for service quality dimensions

Pair Differences					Calculated t	P- Value	Test Result
Dimensions	**Difference of Expectation & Performance**	**Standard Deviation**	**Distance of difference (95%)**				
			Lower Limit	**Upper level**			
Empathy	-1.84	1.28	1.64	2.05	17.48	0.00	Supported
Reliability	-1.42	1.19	1.22	1.61	14.38	0.00	Supported
Responsiveness	- 1.21	1.29	1.00	1.42	11.40	0.00	Supported
Assurance	-1.40	1.20	1.20	1.59	14.04	0.00	Supported
Tangibles	-1.27	1.32	1.05	1.48	11.69	0.00	Supported
Total	-1.42	1.00	1.26	1.58	17.17	0.00	Supported

Table 4. Regression equations results of relation between

Dependent variable	Customer satisfaction	Loyalty	Loyalty
R²	0.437	0.458	0.803
F	112.667 ***	122.410 ***	292.563 ***
Beta: Service quality	0.661 ***	0.667 ***	0.159 ***
Beta: Customer satisfaction			0.783 ***

Table 5. Pearson correlation index test results between fivefold dimensions of Service quality and Satisfaction

Service quality Dimensions	Correlation Index	P-Value	Test Result
Empathy	0.324	0.000	Supported
Reliability	0.437	0.000	Supported
Responsiveness	0.559	0.000	Supported
Assurance	0.719	0.000	Supported
Tangibles	0.604	0.000	Supported

Table 6. Pearson correlation index test results between fivefold dimensions of Service quality and loyalty

Service quality Dimensions	Correlation Index	P-Value	Test Result
Empathy	0.344	0.000	Supported
Reliability	0.453	0.000	Supported
Responsiveness	0.578	0.000	Supported
Assurance	0.737	0.000	Supported
Tangibles	0.596	0.000	Supported

Table 7. Pearson correlation index test results between fivefold dimensions of Service quality and satisfaction

Service quality Dimensions	Pearson Correlation Index	P-Value	Test Result
Resulted Dimension	0.437	0.000	Supported
Processed Dimension	0.704	0.000	Supported

Table 8. Pearson correlation index test results between fivefold dimensions of Service quality and loyalty

Service quality Dimensions	Pearson Correlation Index	P-Value	Test Result
Resulted Dimension	0.453	0.000	Supported
Processed Dimension	0.704	0.000	Supported

An Empirical Assessment of the Relationship between National Culture and Learning Capability in Organisations in Cambodia

Makararavy TY

School of Management, Shinawatra International University

E-mail: Makararavy@siu.ac.th

John WALSH (Corresponding Author)

School of Management, Shinawatra International University

E-mail: jcwalsh@siu.ac.th

Pacapol ANURIT

School of Management, Shinawatra International University

E-mail: Pacapol@siu.ac.th

Abstract

An intensely competitive world forces organizations to act ever more quickly. To enhance their capability to respond to change, organizations should seek to identify what are their core competencies and the competitive advantages which are their keys to success. The term "organizational learning" has become a term of interest to many academics and practitioners because this represents the organization's ability to change. Simultaneously, organizations have to consider the cultural context in environments in which they act. This paper assesses the relationship between national culture and learning capabilities of a sample of organizations in Cambodia. The survey questionnaire, which received 417 responses, related to national culture and organizational learning. The study found that national culture had strong relationships with learning capabilities of organizations in Cambodia. The paper concludes by following some recommendations for Cambodian organizations to take into consideration to strengthen their levels of performance.

Keywords: Cambodia, Empirical assessment, Learning capability, National culture, Relationship

1. Introduction

In Cambodian culture, the individual from the age of a child is not encouraged to ask a lot of questions since it is considered to be impolite and annoying for adults (Pearson, 2006). The teachers are supposed to know all and the students know nothing. This is clearly related to the long-term suppression of the interests of the peasant classes both in terms of economic activities (e.g. Scott, 1976: 195-6) and through the production of cultural values such as *chbap* poetry, which stresses the importance of following the wisdom of the state as manifested through religious and societal norms (cf. Chandler, 1996). As Althusser might have observed, both repressive and ideological state apparatus have been mobilized to reinforce these messages (Althusser, 2001, pp.85-127).

Pearson (2006) observed that, in Cambodian culture, the primary purpose of learning is to be able to 'do' something, so learning is viewed as the acquisition of tools and techniques in a classroom or workshop setting. Learning is the responsibility of the teacher, not the student. She found that everyone in Cambodia over 25 years of age experienced a didactic teaching methodology which actively suppressed independent and analytical thinking. This means that if someone can not answer the question will lead to 'loss of face', so questions (and especially 'why?') tend to be viewed as something negative, rather than helpful. It is different from much of Western culture where the children are encouraged to ask and do whatever they are curious to learn and to do.

In relation to this aspect of Cambodian culture, it is interesting to observe closely individual practices in the organization. Each organization is unique, varying not only in the quantity, quality and types of resources deployed and in the outputs produced, but also in its culture (Ferguson & Ferguson, 2000). One interesting area to study concerning the organization in Cambodia relates to the nature of organizational learning, since Cambodia has emerged from periods of genocide and command economy which all but destroyed all Cambodian institutions. This paper aims to determine whether culture has a close relationship with the learning performance of organizations in Cambodia. Moreover, it is believed that the performance of the organization depends on how it learns from its individual staff because an "organization is a group of people acting to achieve particular outcomes" (*ibid*: 16). In other words, if the staff (or human resources) cannot contribute to organizational learning, then the organization seems to be doomed in Cambodia.

2. Literature Review

2.1. What Is Culture?

Although culture is a concept familiar to most people, it is difficult to specify exactly what it means. For example, two anthropologists (Kroeber & Kluckhohn, 1952) catalogued 164 separate and distinct definitions of the word 'culture'. This issue is further complicated by the fact that the word 'culture' has several quite different meanings. It can refer to a shared, commonly-held body of general beliefs and values that define what is right for one group (Kluckhohn & Strodtbeck, 1961; Lane & Distefano, 1988), or to socially elitist concepts, including refinement of mind, tastes and manners (Heller, 1988).

The word 'culture' apparently originates with the Latin *cultura*, which can be translated as a cult or a concept related to worship. Cult members embed the ways of doing things that is supernaturally mandated into the culture they develop. According to Terpstra and David (1985: 5), "Culture is a learned, shared, compelling, interrelated set of symbols whose meaning provides a set of orientations for members of a society. These orientations, taken together, provide solutions to problems that all societies must solve if they are to remain viable." This definition is used in the current paper.

2.2. Cambodia's Cultural Values

Cambodia has undergone various political changes and societal structures since the end of the colonial period. Since the Khmer Rouge period in particular (1975-9), the images used to describe Cambodia now generally involve mass suffering, refugees dependent on handouts for survival, victims of bombings and mines, corruption and the land of 'Killing Fields' and the 'Khmer Rouge genocide.' This is very problematic both for the Cambodians wishing to establish businesses in their own country and in overseas interests wishing to establish organizations within the country. Not only are there the problems of lack of business infrastructure but there are many deeper and often unstated problems of the trauma suffered by Cambodians and the damage inflicted upon Cambodian cultural values. Cambodia has been constructed under various values such as:

- From Brahmanism to Buddhism: Brahmanism was dominant in Cambodia until the sixth century CE until it was gradually replaced by Theravada Buddhism (Steinberg, 1959). Although Buddhism is now considered to be the religion of all ethnic Khmers, this is a Buddhism that is thoroughly intermingled with pre-existing animist and Brahmanistic practices and concepts. The two traditions vary in important ways: the spread of Buddhist ideology progresses through written scriptures and the formal organization of the Sangha, while animism spreads informally and orally on a face-to-face basis. Further, Buddhism appears to be part of a much more gentle tradition compared with what has been described as "… a basis for elite megalomania" associated with Brahmanism (Bit, 1991).

- Patriarchies: in common with most cultures, Khmer society is patriarchal in nature (Ledgerwood, 1995). While there is some flexibility in practice in society, there remain quite strong gendered distinctions concerning domestic labour both within and outside the house. In Khmer village life, men perform the external chores related to agriculture (e.g. fishing, ploughing, threshing rice, repairing tools, caring for cattle and livestock), while women took care of shopping and food preparation, child and elderly care, maintaining the house and caring for household vegetable plots. While men worked as bread-winners by working outside the house, it is the women who actually kept the money and purchased daily items in markets. Men are considered to be the heads of their households.

- Post-colonial period: the colonial period bound much more tightly the emergent Cambodian plantation economy into international market relationships and caused Cambodian (and indeed migrant Chinese and Vietnamese) workers to become part of the global division of labour and network of productions (Slocomb, 2007). The French colonial period (1863-1954) was ended with the defeat at Dien Bien Phu and evacuation of remaining French forces from the Indochinese region; Cambodia was placed under the control of King Norodom Sihanouk. The French period had featured institutional development in terms of ecclesiastical bureaucracies, systematic governance procedures and boundary determination but little took place to promote for Khmer people the educational and medical systems, nor to develop the infrastructure for national purposes.

- Post communist: after a lengthy and depressing history of war with neighbouring countries, civil war, a genocidal regime with the installment of communist system, Cambodia under the Khmer Rouge adopted the Maoist version of Russian Marxist-Leninism and this was in time supplanted by Vietnamese communism after the 1979 invasion. The upheavals that took place during this period turned Khmer society upside down and led to unparalleled misery and destruction (Chandler, 2005).

- Rice growing country: agricultural activities remain concentrated on subsistence rice growing with one harvest a year and agricultural methods that are largely traditional. This is a totally different lifestyle from those of the people living in the cities (Rigg, 1997: 155-69). Urban people are more individualist-oriented because they left from home in the early morning to go to their workplace and came back in the evening. Everyone focused on her or his own activities. Sometimes they did not know their neighbours since they did not have any time to communicate with each other.

- Multi-cultural influences: the indigenous people of Cambodia are the Khmer - the so-called 'true' Cambodians – who comprise 85-90 percent of the total population and speak a language unrelated to the other major languages of the region (i.e. Thai, Laotian and Vietnamese). The largest ethnic minority population is the Vietnamese, whose numbers range between 500,000 and a million. However, those numbers are hotly contested for political reasons concerning representation, taxation and so forth.

- Changes in Cambodian culture: the cultural drift of Cambodia towards paternalism, autocratic rule and ritualistic behavior, most noticeable in the centuries of direct Indian influence, set the course for succeeding cultural development. The changes had the outcome of intensifying a sense of insecurity among a population under foreign control and encouraging a further retreat into a fantasy view of past cultural achievements. On a more positive side, aspects of the culture received the first exposure to a modernizing process and resulted in new agricultural developments, public works, schools, and the scholarly revelations of a cultural history. Nevertheless, longstanding prejudices against people with disabilities, for example, tend to keep them marginalized from mainstream activities (see e.g. Gartrell, 2010). A similar situation exists for people from ethnic minorities for whom Khmer is a second language and so they face particular problems in joining the community and labour force (Gregerson, 2009).

2.3. Concept of Organizational Learning

The term 'learning organization' is often used interchangeably with the term 'organizational learning.' However, there are differences, notably that organizational learning describes certain types of activity that take place in an organization while a learning organization is a particular type of organization in and of itself (Tsang, 1997). The difference is that between 'becoming' and 'being.' Organizational learning is a process by which organizations can become learning organizations through promoting learning in a conscious, systematic, inclusive and synergistic fashion.

The concept of a *learning organization* is defined by Garvin (1998) as 'an organization skilled at creating, acquiring and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights; and by Pedler, Burgoyne and Boydell (1997) as 'an organization that facilitates the learning of all its members and consciously transforms itself and its context. These definitions recognize that a learning organization involves two key elements. First, the organization must be effective at gathering and creating relevant knowledge, storing it for future use, and disseminating it through the hierarchy, engaging everyone in the process of learning. Second, the organization must be able to evaluate the worth of that knowledge and be prepared to act on it, as appropriate, to stimulate and guide change. This second aspect of learning is important: the benefits of knowledge can only be realized when used effectively to inform and direct the organization's behaviour (Ferguson & Ferguson., 2000: 216). A learning organization is, therefore, more than an organization with a distinctive capability related to learning. It is one in which learning is endemic and one that can evaluate the worth of the knowledge it has created, draw out its implications and capitalize on it to influence its path. A learning organization is an organization skilled at creating, acquiring and transferring knowledge and at modifying behaviour to reflect new knowledge and insights (Garvin, 1993). Fundamentally, it is one which can be identified, diagnosed and replicated or created along systematic and scientific lines (Salisbury, 2010). However, some recent strands of thinking about the subject reject the original linear approach of Senge and seek to replace it with generative complexity approaches (Jörg, 2010).

Why should there be learning organizations? Why do we need them? There are at least two interrelated reasons (Hitt, 1995). Revans (1982) argued that learning must exceed environmental change or else the organization may shrivel and die. Second, there is the quest for excellence. Stakeholders are motivated and inspired by the search for improvement and this, itself, is necessary for survival for organizations that do not evolve will also face the threat of destruction. As economies move towards knowledge intensive industries as a means of achieving and sustaining competitiveness, the need for organizations to learn also intensifies (Liao *et al.*, 2010; Stancu and Balu, 2009).

To evaluate learning abilities in organizations, Alas and Sharifi (2002) grouped indicators of organizational learning through cluster analysis. This resulted in two clusters, the cluster of individual learning and the second

the cluster collective learning. Individual learning requires that people should be motivated to take initiative and make changes in their own working patterns, as well as being aware of the vision and goals of the organization involved (*ibid.*). Collective learning, on the other hand, involves staff willing to work together to improve connectivity and interactive relations. Instead of using the term 'collective learning,' this study uses "team/group learning" because it explains the meaning of the term more clearly.

The literature on Cambodian culture (as for the cultures of other countries) indicates certain specific features which are pertinent to Khmer society. These would not be applicable to all other societies. Hence, it is reasonable to assume that models concerning how to build learning organizations would need to be adapted to some extent by their application in Cambodia. The relevant ways in which this might be manifested concern the relationships between national cultural values, individual learning abilities and team learning abilities. It is the interrelationship between these variables that are used as the hypotheses examining the research questions in this paper.

3. Methodology

This section discusses the methodology used to conduct data collection and data analysis. This study uses a mix of *exploratory* and *formal* methods suitable for answering research questions which are considered to be descriptive hypotheses (Cooper & Schindler, 2006). It is based on both primary and secondary data sources. Before conducting the primary data collection, it was necessary to conduct secondary data collection which involves a literature review on theories and concepts as well as past research studies, and to get a clear problem statement of the topic of investigation. The secondary data of this research were collected from journal publications, reports from the United Nations (UN), non-governmental organizations (NGOs) and donor agencies, books, internet, research papers, theses, conference and other sources of information. The quantitative research methods and interview questions were used to collect primary data. In-depth interviews were conducted randomly among managers in order to explore the current situations of the organizations. Survey research was employed to generate data from the primary source which was all employees of all organizations throughout the country. Since the population of the study is large, the authors decided to restrict the survey to employees whose workplaces were located in Phnom Penh, the capital city of Cambodia.

The literature review led to the conceptual framework where the independent variable is national culture, and individual learning and team learning (which are the items of learning capabilities) are the dependent variables. This study proposes hypotheses, which are also presented in null format:

Ho1a: National culture variable does not have a significant relationship with the individual learning variable.

Ho1b: National culture variable does not have a significant relationship with the team learning variable.

Ho2: There is no significant relationship between the individual learning variable and the team learning variable.

The structured questionnaire were distributed to more than 2,000 people working in private organizations and NGOs located in Phnom Penh and the number of completed and returned questionnaires was 417. Inspection of completed questionnaires suggested there were no insuperable problems with non-respondent bias. The data were analyzed by hypothesis testing by SPSS analysis using tools such as descriptive statistics, chi-square tests, factor analysis and regression. The reliability of questionnaire responses, calculated by Cronbach's Alpha, was 0.895, which is above the acceptable value of 0.70 (Zikmund, 2000). The respondents were from 18 international NGOs (INGOs), 8 local NGOs (LNGOs), four private organizations and one multinational corporation (MNC).

Various assumptions have been made about the statistical analysis and the data gathered. Investigation of the data did not reveal any systematic asymmetric bias and it is known that techniques such as factor analysis, correlation and linear techniques demonstrate a robust nature under such circumstances (Vasu, 1979). Plot analysis of predictor variables further alleviated concerns about homoscedasticity. Testing for the presence of multicollinearity involved examination of $1 - r^2$ (in which the latter is the measure of regressions against all other independent variables). The tolerance level (selected arbitrarily but conventionally at 0.20) was not violated. Further tests were taken to ensure that the quality of data and analysis were as high quality as might be reasonably expected.

Factor analysis can be a powerful tool for content validity in addition to data reduction. The strategy in this case was to formulate an exploratory model (principal components with varimax rotation) so as to facilitate interpretation and to help in interpreting scale validity of the constructs produced (Desselle, 2005).

4. Analysis of Findings

The questionnaire was answered by 417 respondents, of whom 144 (34.5%) were Cambodian, 19 (4.6%) Asian, 20 (4.8%) Australian, 46 (11.0%) American, 72 (17.3%) European and 116 (27.8%) wished not to tell their nationality.

The majority of leaders were Cambodian (33.1%) followed by European (16.5%), American (16.1%), Australian (4.3%), and Asian (3.8%). The remaining 26.1% did not answer the question, perhaps because some respondents might not know the exact nationality of their leader and some ignored this question.

The majority of superiors, 247, were Cambodian (59.2%), 34 European (8.2%), 23 American (5.5%), 7 Australian (1.7%), 5 Asian (1.2%), 2 African (0.5%) and 99 respondents did not answer the question for unknown reasons.

The study found that 49 respondents answered that their organization did not have any other offices; 33 gave the answer of one office; 29 said 2-5 offices; 6-9 offices for 12 respondents; 10 and more offices for 33 respondents and 261 did not answer. The non-responses for this answer might be because respondents did not belong to an international organization.

The number of offices of local organizations was divided into four rankings: 33.1% had 1 office; 11.0% answered 2–5 offices; 2.6% said 6–9 offices; 2.2% said their organizations had 10 and more offices spread around the country; 51.1% declined to give an answer.

It was found that there were 213 men, 193 women and 11 respondents who preferred not to be identified. The majority of respondents were aged from 21–30 years (67.6%), followed by those aged 31–40 years (20.4%); 41–50 years (6.2%); 51–60 years (1.9%); less than 20 years (0.7%); over 60 years (0.2%) and 2.9% did not answer. The result showed that there were 283 respondents (67.9%) with an undergraduate degree; 72 respondents (17.3%) held a graduate degree; 22 respondents (5.3%) had high school education followed by 12 (2.9%) with lower secondary education; 7 respondents (1.7%) had passed through vocational school; 2 (0.5%) had doctoral degrees and 1 (0.2%) had only primary school education. 18 respondents (4.3%) did not provide an answer. The position of respondents was divided into 5 groups: there were 6 directors (1.4%), 51 managers (12.2%), 27 supervisors (6.5%), 289 general staff (69.3%), 28 other positions (6.7%), and 16 no answer. The majority of the respondents had 3.1–5 years working experience (39.1%) followed by 1.1–3 years (26.1%), 5.1–7 years (8.2%), over 10 years (7.9%), fewer than 1 or 1 year (7.2%), 7.1–10 years (7.0%), and no answer of 4.6%. The experience of respondents in their current organization was 3.1–5 years experience (30.9%), followed by fewer than 1 or 1 year (30.2%), 1.1–3 years (28.3%), 7.1–10 years (2.6%), 5.1–7 years (2.2%), over 10 years (1.2%) and 4.6% did not respond.

4.1. Constructs

• *National culture* was constructed by 10 questions where the average result of $\overline{X} = 3.53$, $SD = 1.03$. The score fell in the range $3.41 – 4.20$, which leads to the conclusion that national culture influenced the learning in the organization. Among the 10 variables, the respondents strongly agreed that "learning is believed to be very important in their culture" with $X = 4.43$, $SD = 0.69$.

• *Individual learning*: Respondents agreed with individual learning in every aspect with the overall score ($\overline{X} = 3.65$, $SD = 0.926$) where the respondents agreed to all the factors except for a neutral response to question C-7, which stated that people are rewarded for learning ($X = 3.03$, $SD = 1.164$).

• *Team learning*: Respondents agreed with team learning in every aspect with the overall score ($\overline{X} = 3.61$, $SD = 0.816$), in that the respondents agreed with all the factors except for a neutral response to question D-5, which stated that teams/groups are rewarded for their achievements as a team/group ($X = 3.27$, $SD = 0.993$).

Factor analysis was used in order to reduce the number of components of each variable. All items were factor analyzed using principal component analysis method followed by Varimax rotation.

- *National culture variable* is composed of 4 factors named (1) importance of learning, (2) face saving and long term relationship, (3) favour wealth rather than education, and (4) do not favour change.

- *Individual learning variable* is composed of three factors, namely (1) rewards and supports for learning individually, (2) employee development and sharing to learn individually, and (3) employee relationship.

- The *Team learning variable* was composed of one factor named team/group learning.

The regression method was used in order to test between the interval variables in order to evaluate the null hypotheses, which can be rejected when the significance level of 0.05 is reached.

Prior to hypothesis testing and according to statistical principles, it was decided to factor analyze all variables, which produced the following results:

National culture

Thirteen variables concerning national culture were reduced to four components.

- *Importance of learning* results from the following statements: "learning is believed to be very important; males and females have equal opportunity to receive education; and young people are encouraged to challenge senior people;"

- *Face saving and long term relationship* results from the following statements " teacher/instructor is the one we should show respect to rather than challenging them with questions; face saving is very important; people believe in long-term relationships;"

- *Favour wealth rather than education* results from the following statements "people are encouraged to share knowledge; people value rich people more than educated people;"

- *Disfavour change* results from the following statements "change initiatives are viewed as inappropriate; senior people are believed to have more knowledge and skills relative to their juniors."

Individual learning

Thirteen variables concerning individual learning resulted in three components.

- *Rewards and supports for learning individually* is summarized from the following statements: "in my organization, people can get money and other resources to support their learning; in my organization, people are given time to support learning; in my organization, people are rewarded for learning; in my organization, people give open and honest feedback to each other;"

- *Employee development and sharing to learn individually* is summarized from the following statements "in my organization, people openly discuss mistakes in order to learn from them; in my organization, people identify skills they need for future work tasks; in my organization, people help each other learn; in my organization, people listen to others' views before speaking;"

- *Employee relationship* is summarized from the following statements "in my organization, people are encouraged to ask 'why' regardless of rank; in my organization, whenever people state their view, they also ask what others think; in my organization, people treat each other with respect; in my organization, people spend time building trust with each other."

Team learning

Six questions in team learning were reduced to only one component which is named *team learning*.

After factor analysis of all variables, a regression technique was utilized to test the relationship among the variables. The result showed that national culture is not related to individual learning but it is related to team/group learning (Tables 1.1 and 1.2). This result is different from what had been anticipated.

4.2. Hypothesis 1

The national culture (importance of learning, face saving and long-term relationship, favour wealth rather than education) did not affect individual learning because all factors had significance levels above 0.05. The model summary represented the strength relationship (R = 0.104(a)) between national culture and individual learning as being very low. The ANOVA tests the acceptability of the hypothesis from the statistical perspective and it was found that the significance value of the F statistic is 2.404 and Sig is 0.122(a) which is higher than the significance level of 0.05. From this it is concluded that no relationship between national culture and individual learning has been identified.

The national culture (importance of learning, face saving and long-term relationship, favour wealth rather than education) affected the organizational culture because all factors had significance levels below 0.05. The model summary represented the strength relationship (R = 0.276(a)) between national culture and individual learning as being very high. The ANOVA table tests the acceptability of the hypothesis from the statistical perspective and it was found that the significance value of the F statistic is 18.976 and Sig is 0.000(a), which is less than the significance level of 0.05. The null hypothesis (Ho1b) was thereby rejected. So it is concluded that there is a relationship between national culture and team learning.

4.3. Hypothesis 2

Hypothesis 2 (H2): there is a significant relationship between individual learning and team learning.

Null Hypothesis 2 (Ho2): there is no significant relationship between individual learning and team learning.

Individual learning (rewards and support for learning, employee development and sharing and employee relationship) affected team/group learning because all factors had significance of less than 0.05. The model summary represented the strength relationship (R = 0.673(a)) between organizational culture and teams/group

learning as being very high. The ANOVA table tests the acceptability of the hypothesis from the statistical perspective and it was found that the significance value of the F statistic is 204.297 and Sig is 0.000(a), which is less than the significance level of 0.05. The null hypothesis (Ho2) was rejected. Thus it could be concluded that there is a relationship between individual learning and team/group learning.

5. Conclusion and Discussion

The researchers expected that there would be strong relationships between national culture and individual learning. In Cambodian culture, people were taught to be obedient and polite and to be followers rather than leaders. However, the results observed might be caused by the presence of a group of young respondents with high levels of education. Their behaviour may have changed over time and they may have different ways of looking at their own culture since they were trying to adjust to the competitive world by capturing new knowledge and skills perceived as important and appropriate. Argyris (1990) warns that culture can either block learning and change or it can stimulate learning; this study revealed that national culture did not support individual learning. In this regard, it is noted that the methodology employed seemed to represent a useful and helpful means of investigating the research question. Factor analysis, when employed prudently, can be a powerful investigative tool for content validity verification and also for interpretation of otherwise complex data sets and interactions.

The second hypothesis was also supported. There was a significant relationship between individual learning and team/group learning. This means that the result is uniform with the expectations of the researchers. It is assumed that organizations are composed of groups of individuals. Once each individual staff member of the organization is rewarded and supported for their learning behaviour, they tend to have a stronger career and skill development. At the same time, they seem to have good relationship toward each other which creates a favourable knowledge-sharing and learning environment. Reward structures and schemes certainly make a difference by affecting motivations and hence shaping employees' learning orientation and the amount of effective learning that take place. Various studies point to the importance of crafting flexible and creative rewards for learning, and offering a mix of monetary and non-monetary rewards to cater for individual needs and performance (Pedler, Burgoyne, and Boydell, 1997). Some interviewees claimed that their organizations have policies to increase the salary for the staff who could achieve their performance and learning expectations. They further argued that most staff were happy and were willing to learn and share their knowledge with other staff. They seemed to have good relationships with each other and this contradicts the idea that sharing is bad because another person might learn their duty and then supplant them.

Challenging, questioning and holding dissenting views are discouraged, conflict is seen as bad and loss of face is to be avoided at all costs. This is uniform with the uncertainty avoidance aspect of Geert Hofstede (1991). In this kind of society, people will learn to repeat what is believed to be appropriate and will not try to do anything different. This leads to low levels of creativity and learning. This concept is not only promoted by Buddhism but it is believed also to have a Confucian influence. Confucianism arrived in Cambodia via Chinese migrants and has had a strong impact on the behaviour of some individuals. According to Chang (2007: 190), Confucianism had previously discouraged people from taking up professions like business and engineering as well as developing creativity and entrepreneurships. However, some historians raised positive aspects of Confucianist cultural values such as "thrift, investment, hard work, education, organization, and discipline." This is indicated by the huge economic development in China, Hong Kong, Japan, Singapore, Korea, Taiwan and so on where Confucianism was practiced. Society is pluralistic.

Some 90% of Cambodian people work in rice production and have faced the stereotyped accusation of being lazy but Chang (2007), argued that people in East Asia in the past lived comparatively comfortable lives based on fertilized land and favourable weather. Today, where globalization and economic crisis affect every part of the globe, while climate change is increasingly causing natural disasters in the region, East Asian people have tended to work harder and to become more long-term oriented than their counterparts in the West. The accusation of laziness is revealed as false as people work hard when given an incentive to do so since economic development affects culture more than the other way round. It is shown, for example, that Cambodian migrants work harder and are more successful when they stay in a society where there is intensive competition to survive.

This research generally supports the view that progress toward the learning organization paradigm is incremental and long-term, rather than being an overnight metamorphosis. The findings, consistent with research findings in different contexts, support this observation, by pointing to sketchy patterns of progress vis-à-vis different dimensions of the construct. Learning should not be left to chance or overlooked but rather valued and integrated

into the organization and the work life of the employee. The process has to be constantly reinvigorated and reinforced with respect to different learning organization dimensions and considered more of a journey.

6. Recommendations

After analyzing the results of the study, recommendations will be suggested at three different levels:

6.1. Individual Level

Each individual staff member in the organization is an important asset for success because they are equipped of with organizational tacit and explicit knowledge. Each employee is recommended to:

- *Be open to new culture* other than their own as their own, which instructs them to be a follower rather than a leader. In Cambodian culture, challenging questions and raising questions during meeting or to senior people are viewed as inappropriate and impolite forms of behaviour. Thus, this cultural value should be left behind because it could block the learning capability of each individual.

- *Be ready to learn*: learning could be done formally and informally. Employees could have new knowledge from sharing discussions in formal or in non-formal meetings, via the intranet, from attending training, seminars, conferences or workshops. They could learn in group or individually. Hence, continuous learning and learning behaviour are crucial to prepare the organization for becoming a learning organization.

- *Be ready to accept changes*: change is the first way to improve the current situation of the organization. Change should be viewed positively.

6.2. Organizational Level

In addition to individuals contributing to preparation towards becoming a learning organization, greater attention should be given to organizational culture and to creating a strong feeling of solidarity. It is to be noted that leadership commitment is very important. If the leader is not willing to strengthen the learning capability of the organization, all initiatives are likely to fail.

In order to obtain ideas from the grass-roots level, managers should encourage direct communications between the highest and lowest levels of organizations, delegate authority to lower levels in organizations and create an atmosphere where people are not afraid to make mistakes. Peoples' well-being should be emphasized more and their good performance rewarded. In such conditions, people tend to be proud of their organization and concentrate more on the goals of the organization than on their own needs.

Most organizations in Cambodia follow traditional bureaucratic structures, focusing on orderliness and vertical lines of communications. Today, many managers realize that orderliness is not sufficient even though it may remain necessary. It is apparent that an organizational structure must be designed for both stability and flexibility. The learning organization should incorporate both dimensions by establishing dynamic networks within the vertical structure. This should help foster a participative decision making culture amongst the employees.

Apart from this investment in software, the leader should consider hardware investment such as workplace design and technology (internet and intranet installation). This investment is necessary for knowledge sharing among staff members both inside and outside the organization.

To promote the values and goals of the organization through an informal structure, managers can organize out-of-work activities and encourage people to get to know each other's personal lives and activities. It gives people a better understanding of how to communicate with each other and a willingness to discuss important matters with each other. They also then tend to help each other in job-related problems.

A learning and reward policy should be initiated in order to enable and encourage employees to obtain continuous learning. At the same time, it is necessary to have a performance measurement system such as the balanced scorecard approach because it is designed to pull people towards the overall vision. However, it is not recommended to use only one measurement technique because no single measure can provide a clear performance target.

In term of gender disparity, female employees should be encouraged to voice their ideas in any strategic planning and should to be considered as potential members of the management team. Both masculine and feminine values have a great deal to offer and, by extension, both women and men have something to learn from working together.

The results of the current research support the developmental view of organizational learning that there should be more time set aside in order to develop relationships, which is a necessary basis for organizational learning. At the same time, it is not guaranteed that at some stage every organization will turn into a learning organization;

it depends on various characteristics and factors. Among these, one that is particularly important is the personnel policy of the organization. This policy should enable the organization to retain highly skilled specialists for a longer period in the organization, keep their level of creativity and activity high and convince them of the need to cooperate with other members of the organization.

6.3. National Level

At the national level, it is the task of the government to take action in order to prepare itself to foster a learning society. The government should provide proper public services, in particular educational services in both the formal and informal sectors. Citizens are supposed to have the right to free basic education until high school level. This is not the case for the Cambodian people because public education is very poor in quality and also high in quantity. For example, in a classroom in the city, there are over or about 100 students and most of them are thereby unable to concentrate on the lecture in the classroom. It is necessary for pupils to take out of school tutorial classes which are very costly just so they can receive the mandated education. Only children from medium and high class families can of course afford these private tutorial classes. On the other hand, in rural areas, there is a lack of teachers. A teacher sometimes single-handedly managers classes from grade 1 to 6 at primary school level. It is very difficult for pupils to learn well in such an environment.

Moreover, the government does not have any schools for students who wish to study outside regular hours because of poor infrastructure. Most schools both in urban and rural areas do not have electricity. For this reason and because of safety issues, the government does not have a policy to provide night time schooling. Apart from electricity, some schools do not have proper toilets and this limits the number of female students. Some female students cannot go to school because they do not feel secure. The government's task is to provide proper facilities to ease the learning of each citizen. Cambodian culture tends to give more favour to men rather than women. The government should take serious initiative to involve women in societal development because excluding them is a waste of precious assets and qualified labour.

References

Alas, R. and Sharifi, S. (2002). Organizational learning and resistance to change in Estonian companies. *Human Resource Development International, 5*(3),.313 – 331.

Althusser, L. (2001). *Lenin and Philosophy and Other Essays*. New York: Monthly Review Press.

Argyris, C. (1990). *Overcoming Organizational Defenses: Facilitating Organizational Learning*. Wellesley, MA: Allyn and Bacon.

Bit, S. (1991). *The Warrior Heritage*. California: Seanglim Bit.

Chandler, David (1996). "Normative Poems (Chbap) and Pre-Colonial Cambodian Society," in David Chandler, *Facing the Cambodian Past*. Chiang Mai: Silkworm Books, pp.45-60.

Chandler, David (2005), "Cambodia since 1975," in Norman G. Owen, ed., *The Emergence of Modern Southeast Asia: A New History*. Singapore: Singapore University Press,.481-91.

Chang, H. J. (2007). *Bad Samaritans: The guilty secrets of rich nations & the threat to global prosperity*. London: Random House.

Cooper, D. R., and Schindler, P. S. (2006). *Business research methods*. New York: McGraw Hill.

Desselle, S.P. (2005). Construction, implementation, and analysis of summated rating attitude scales. *American Journal of Pharmaceutical Education*. 69(5). Special Article 97. 1-11.

Ferguson, P. R. and Ferguson, G. J. (2000). *Organizations: A strategic perspective*. New York: St. Martin's.

Gartrell, A. (2010). 'A frog in a well:' the exclusion of disabled people from work in Cambodia. *Disability and Society*. 25(3). 289-301.

Garvin, D. A. (1993). Building a learning organization. In B. Burnes (Ed.). (2000). *Managing change: A strategic approach to organizational dynamics* (p. 136). London: Prentice Hall.

Garvin, D. A. 1998, "Building a learning organization", *Harvard Business Review on Knowledge Management*, Harvard Business School Publishing, Boston, MA, pp. 47−80.

Gregerson, M.(2009). Learning to read in Ratanakiri: a case study from northeastern Cambodia. *International Journal of Bilingual Education and Bilingualism*. 12(4). 429-47.

Heller, F. A. (1988). Cost benefits of multinational research on organizations. In M. Poole & M. Warner (Eds.). (2001). *The IEBM handbook of human resource management* (p.11).

Hitt, W. D. (1995). The learning organization: some reflections on organizational renewal. *Leadership & Organizational Development Journal, 16*(8), 17-25.

Hofstede, G. (1991). *Cultures and Organizations: Software of the mind*. New York: McGraw Hill.

Jörg, T. (2010). Rethinking the learning organization. *Proceedings of the European Conference on Intellectual Capital*. 317-25.

Kluckhohn, A. and Strodtbeck, F. (1961). Variations in value orientations. In M. Poole & M. Warner (Eds.). (2001). *The IEBM handbook of human resource management* (p.11).

Kroeber, A. and Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. In M. Poole & M. Warner (Eds.). (2001). *The IEBM handbook of human resource management* (p.11).

Lane, H. and DiStefano, J. (1988). International management behavior – From policy to practice. In M. Poole & M. Warner (Eds.). (2001). *The IEBM handbook of human resource management* (p.11).

Ledgerwood, Judy L. (1995). Khmer Kinship: The Matriliny/Matriarchy Myth. *Journal of Anthropological Research*, Vol.51, No.3 (Autumn). 247-61.

Liao, S-H, Chang, W-J and Wu, C-C (2010). An integrated model of learning organization with strategic view: Benchmarking in the knowledge-intensive industry. *Expert Systems with Applications*. 37(5) (May). 3792-8.

Pearson, J. (2006). *Organizational learning across cultures: Reflections and discussion on VBNK' s experiences in Cambodia and the importance of understanding the cultural perspectives of learning.* Retrieved August 20, 2007, from http://www.vbnk.org/Articles/PraxisNote%2020%20-%20OL%20across%20cultures.pdf

Pedler, M., Burgoyne, J. and Boydell, T. (1997). *The learning company: A strategy for sustainable development (2nd Ed.).* London: McGraw-Hill.

Revans, R. (1982). *The origins and growth of action learning*. Bromley: Chartwell Bratt.

Rigg, Jonathan. (1997). *Southeast Asia: the human landscape of modernization and development*. London: Routledge.

Salisbury, M. (2010). Creating an innovative learning organization. *International Journal on E-Learning*. 9(1). 115-28.

Scott, James C. (1976). *The moral economy of the peasant: rebellion and subsistence in Southeast Asia*. New Haven and London: Yale University Press.

Slocomb, Margarete (2007). *Colons and coolies: the development of Cambodia's rubber plantations.* Bangkok: White Lotus Press.

Stancu, D. and Balu, F-O (2009). Building a 'learning organization:' Case study for a banking organization. *Metalurgia International*. 14(12). 174-9.

Steinberg, D. J. (1959). *Cambodia: Its people, its society, its culture*. New Haven: HRAF Press.

Terpstra, V. and David K. H. (1985). *The cultural environment of international business*. South-western Pub Co.

Tsang, E. W. K. (1997). Organizational learning and the learning organization: a dichotomy between descriptive and prescriptive research. In R. Alas, & M. Vadi. *The impact of organizational culture on organizational learning at six Estonian hospitals.* Retrieved January 18, 2008, from http://www.ceeol.com/aspx/getdocument.aspx?logid=5&id=050AF9CA-8C45-4940-A9B1-2EB7EDDE8B58.

Vasu, E. S. (1979). Non-normality in regression analysis: Monte Carlo investigation under the condition of multicollinearity. Working papers in methodology. Number 9. Institute for Research in Social Science, University of North Carolina. Chapel Hill, North Carolina, USA

Zikmund, W. G. (2000). *Business research methods.* Fort Worth: Dryden Press.

On Risks and Control of Social Security Fund Entering Security Market in China

Hongbo Duan

School of Management, Hebei University PHD   CAS   UUM

Yanfang Gu & Xuesheng Gao

School of Management, Hebei University

E-mail: duanhongbocn@126.com

Abstract

On the basis of broad literature and data, this paper elaborates the connotation of the risks of social security fund entering security market. We analyze risks facing social security fund entering security market in China from two perspectives: external environment of China's capital market and internal operation of social security fund. And then we propose corresponding policy countermeasures to risks prevention appropriately.

Keywords: Social Security Fund, Enter Security Market, Risks Control

Preface

Along with the reform of social security system, different types of social security funds are emerging in China, whose balance is increasing as well. Forecasted by World Bank, the total amount of China's social security fund will reach $ 1.8 trillion in 2030, becoming the third social security fund in the world. Various social security funds are willing to invest by entering security market in order to maintain the original value or gain. Moreover, capital market also needs organization investors like social security fund to stabilize market. At present, Chinese academe seldom study the risks problems of social security fund entering security market systematically and comprehensively. Therefore, we shall analyze risks facing social security fund entering security market in China from two perspectives: external environment of China's capital market and internal operation of social security fund. Then we propose corresponding policy countermeasures to risks prevention appropriately and actively explore effective countermeasures to risks prevention, which makes practical and instructive sense.

1. Social Security Fund Entering Security Market and Connotation of the Risks

1.1 Concept of Social Security Fund Entering Security Market

Social security fund entering security market is a narrow concept in this paper. In capital market social security fund is used to buy debenture, financial bond and stock except national debt. In the past, China's social security fund was only invested in bank deposit and national debt, while its entering security market predicates further enlarging of investment scope. Along with the development of market economy, especially social security financing mode of entire- or partial fund's accumulation are established in more and more countries and whole market system, including capital market, grows strongly, diversified investment operation of social security fund becomes necessary.

1.2 Connotation of Risks of Social Security Fund Entering Security Market

The risks of social security fund entering security market mean, during the process of investment operation of social security fund entering capital market, due to external economic environment, internal management, supervision and unsure changing of other factors, the real income of social security fund is different from anticipated income, which causes the possibility of loss.

2. Analysis on Risks of Social Security Fund Entering Security Market

Next we are going to analyze risks facing social security fund entering security market in China from two perspectives: external environment of China's capital market and internal operation of social security fund.

2.1 External Overall Risks

Generally speaking, the effective operation of social security fund has objective requirements to security market, which represents as: large capacity of security market and high quality of listed companies, governmental

appropriate interference and good system of laws and regulations, alternative and diversified investment tools, especially reasonable tools for risks prevention. However, mechanism construction of China's security market which started in 1990s is imperfect yet, without a set of comparatively steady mechanism platform, therefore, as an organization investor, social security fund necessarily confronts a series of risks problems when entering capital market.

2.1.1   Systematic Risks of Market Entry

Systematic risks are also called market risks, which refer to those influencing all investors. These risks are usually unavoidable and eliminated. The analysis on external systematic risks facing social security fund entering market not only rests on capital market, but also on possible losses caused by macroeconomic fluctuation, macroeconomic policy change, etc. Therefore, systematic risks consist of policy and law risks, buying power risks, interest rate risks and so on. Statistic data show: The systematic risk of Shanghai Stock Exchange in China is around 2/3, and 1/3 of non-systematic risks. The high systematic risks of China's security market can be reflected by high hand change rate and Price/earnings. Hereinafter Table 1 and 2 show the situation of hand change rate and Price/earnings in China's stock market in recent years. However, in 2002, the hand change rate of New York Stock Market in U.S.A is just 67.1%, and Tokyo 49.6%, Toronto 36.7%, Sydney 53.8%, Hong Kong 57.9%, Singapore 32.8%, so obviously the one in China is far higher than average level of that in other countries.

The high Price/earnings of China attributes to governmental guidance in stock market, so the price of share is not determined by market value rule. Exorbitant Price/earnings indicates the price of share greatly deviates from its real value, which results in market bubble. Therefore, portfolio technique should be applied to the investment of China's social security fund so as to prevent non-systematic risks, and much more systematic risks in the baffling capital market.

2.1.2   Non-Systematic Risks Facing Market Entry

Non-systematic risks refer to the risks facing the security invested in certain industry or company, which are caused by a particular factor directly. Generally speaking, they should be dispersible. But current China just has single investment object, it is hard to decentralize risks by portfolio. The overall quality of China's listed companies is low. Many listed companies slide down after entering market and some even lose, so they are worthless for investment, which increases the investment risks of social security fund.

2.1.3   Other External Risks Facing Market Entry

Next we shall analyze the risks of social security fund caused by unreasonable security market structure, policy risks and law risks of that.

(1) Risks Caused by Unreasonable Capital Market Structure

Besides systematic and non-systematic risks, unreasonable capital market structure also can bring risks problems for China's social security fund entering market. One unreasonable structure represents as so few investment variety. At present, national debt and circulating Share A are the only choices for social security fund to invest in China's security market. On the other hand, corporation debt hasn't been developed well and transaction of money market tools develops slowly in recent years. The balance of corporation debt just accounts for 1% of GDP in China, while high to 30-40% in U.S.A and even 6.89% in Thailand with least developed corporation debt in 2004.

(2) Policy Risks

Firstly, stock policy risks too much attribute to powerful administration. An effective market has to necessarily be a high marketization. Secondly, policy changing brings risks. As part of social economic life, social security fund entering market must be influenced by governmental economic policy and politics. So they have to notice the potential risks caused by policy changing. Inappropriate policy interference will not benefit market rules, so that market can't effectively distribute resources. And the living environment of social security fund will become even hard.

(3) Law Risks

When laws or regulations on security market and fund management are not definite or without test, economic subjects probably encounter risks. Economic subjects might break or disobey laws, regulations, rules, conventions or ethic standards, which may result in loss of gain or capital. The law risks of social security fund entering market mainly come from the following two aspects. Firstly, it is lack of well-established law and regulation system for social security fund investing. Well-established law and regulation system, including

restriction, rule and mechanism restriction and discipline management, is the premise of investment operation of social security fund. The law and regulation system for social security fund investing in China has not been formed properly. Secondly, it is lack of relevant laws for social security fund. Owing to the characteristics of social security fund, the relevant laws are still trivial and non-systematic and need a great deal of corresponding laws and regulations to supplement. Under this situation, the "rule of man" convention left by planned economy hasn't been eliminated completely. Many established laws are never carried out. All these factors bring unsure law risks to social security fund for its investment in security market.

2.2 Operation Risks of Social Security Fund

The operation of social security fund also will bring risks besides the above described external risks. They represent as the following two aspects.

2.2.1 Multi-Level Agency Relationship Resulting in Agency Risks

The investment operation of social security fund has extended and multi-level agency relationship. First, basically social security fund belongs to labors, so the management organizations of social security fund do financing on behalf of labors. Thus it is the first layer of agency relationship which is between labors and management organizations. Second, most management organizations consign fund companies to invest, so the ownership and management of social security fund are separated. At this time, management organizations are principals, and fund companies are agents. Thus it is the second layer of agency relationship. Certainly, there is also another agency relationship inside Fund Company, i.e. professional directors being consigned by shareholders to manage the companies. When principals have different targets from those of agents, agency risks should not be ignored.

2.2.2 Operation Risks of Fund Companies

Operation risks are caused by imperfect or problematic internal program, staff, system and external matters. Usually speaking, compared to ordinary individual investors, fund companies have higher level of management, but not absolutely. China's fund industry is still at developing stage, so managerial level of fund directors hasn't been tested by market completely. Their own problems might produce risks for social security fund entering market. Some fund companies haven't steadily built up business concepts of valuable investment and risks decentralization. Due to historical reasons, various dishonest behaviors from previous self-support to be the banker, centralized investment and associated trade, still exist to different extent. All these behaviors are harmful to the fluidity management of fund and risks control, and also difficult to adapt keen market competition. It is obvious that China's social security fund entering market through fund companies can't ensure to gain fixed income. If the managerial level and financing ability of fund directors don't go further, they will bring operation risks too.

3. Proposals on Risks Control of Social Security Fund Entering Market

3.1 Standard Development of Capital Market and Promoting Quality of Listed Companies

This is the most important part to prevent risks of China's social security fund entering market. Standard operation is the basic guarantee of long-term and stable development of security market. The quality of listed companies directly influences the investment gain of China's social security fund. Standard development of capital market needs: healthy, orderly and reasonable security issuance market, quality guarantee of listed companies, good information disclosure system, good capital market supervision system, strict punishment on insider trading of listed companies and on buying or helping others buy own stocks, and implementation of "delisting" system of listed companies. Especially we should actively us successful experiences and failing lessons of foreign stock market for reference and consider China's current situation, so as to positively and safely solve share distribution problems and lower systematic risks of stock market. By property right reform, listed companies have to be based on laws to establish modern enterprise mechanism, consummate corporation management structure, promote corporation inherent quality, implant core competition of corporations and improve own sustainable development.

3.2 Establish Healthy and Complete Supervision System of Social Security Fund Investing

Operation supervision on social security fund investing is an important part of social security system. Its fundamental targets are to establish healthy and complete supervision mechanism and independent and efficient supervision system on investment operation of social security fund, to maintain safety of social security fund, to fulfill value-ensured and gains, and to further sustainable development of social security system.

3.3 Consummate Laws and Regulations System on Social Security Fund Investing

Firstly, external law system, including "Law of Finance", "Law of Investment", "Law of Trusteeship" and "Law

of Fund", which can ensure effective running of financial market should be consummate, which makes significant sense to safe investing running of social security fund. Secondly, the establishment of "Law of Social Security" and "Law of Managing Social Security (Insurance) Fund" should be expedited. And basic fund managerial problems should be standardized to guarantee full pay of social security fund in time. Also illegal using of fund is forbidden. Thirdly, relevant single law has to be made according to different characteristics of social security fund. And professional managerial regulations of social security fund should be made as well. Thus we pay high attention to laws and put investing running of social security fund into laws scope, so that the fund could really step into standard operation and healthy development.

3.4 Promote the Development of China Fund and Foster Fund Managers

Under the background of China's expediting developing organizational investors, managerial level of fund industry is directly related to risks control ability of China's social security fund entering market. In order to entirely promote managerial ability on fund, marketing ability and customer service ability, the urgent affairs currently are to establish managerial structure of Fund Company based on requirements of modern enterprise, and to prevent "insider's control". At the same time, market function should be developed sufficiently. Competition will force fund companies to enhance internal management and focus on services to investors. They will emphasize on long-term market image and achieve business reputation in the market, in order to consummate capital market.

3.5 Consummate and Regulate Current Information Disclosure System

According to practical experiences all over the world, compelling information disclosure system is a fundamental construction of market, which is confirmed both theoretically and practically in recent years. Due to plenty of problems of information disclosure regulation in China, it is urgent to concentrate to consummate it. The information disclosure regulation system should be open and transparent, with detailed outline, clear on layers, easy to handle, fair implementation, in order to promote market efficiency and reduce unnecessary risk factors. Firstly, we should start from information source and make clear of duty and responsibility of every economic subject for information disclosure. Secondly, we have to enhance civil compensation liability taken by relevant persons. Thirdly, information disclosure should be in time, effective, and sufficient. And its content, format and standard must be unified and regulated. Lastly, we need to expedite the construction of actuarial, accounting and audit firms, risk rating companies and other agency organizations.

4. Conclusion

At present, China is on a key day of developing economy and society. The construction of healthy and complete social security system is an important part of reforming socialism economic system and of establishing socialism harmonious society. Social security fund entering market is the necessary choice of its sustainable running. However, risks prevention of social security fund entering market is a complex and systematic project. So we should consider China's real situation to explore a long-effect system to benefit risks prevention of that. We also need to commit ourselves to consummate capital market per se, simultaneously, establish assistant measures relevant to social security fund entering market, which will certainly benefit our people.

References

Chen, Jiagui and Wang, Yanzhong. (2004). Social Security Report of China (2001-2004). Social Sciences Academic Press (China).

Chen, Jiagui. (2001). Social Security Report of China (1997-2001). Social Sciences Academic Press (China).

George. E. Rejda. (2005). Social Insurance and Economic Security. Economic Science Press.

Xin, Ling. (2003). Several Understanding Mistakes of Social Security Fund Entering Market. Contemporary Economic.

Table 1. Hand Change Rate of Share A in China's Stock Market, 1996—2003 (%)

Year	1996	1997	1998	1999	2000	2001	2002	2003
Shanghai	760. 05	534. 99	355. 3	421. 56	324. 26	235. 71	214. 00	250. 75
Shenzhen	949.68	662.32	411.14	371.61	298.14	207.15	198.79	214.18

Data Source: Almanac of China's Finance and Banking (2000-2004)

Table 2. Average Price/earnings in China's Stock Market, 1998—2003 (%)

Year	1998	1999	2000	2001	2002	2003
Shanghai	34.38	38.13	58. 22	37.71	34.43	36.54
Shenzhen	32.31	37.56	56.03	39.79	36.97	36.19

Data Source: Almanac of China's Finance and Banking (2004)

Table 3. Comparison between Stock Financing and Corporation Debt, 1998—2003 (Billion Yuan)

Year	1998	1999	2000	2001	2002	2003
Value of Stock Financing	80.36	89.74	154.10	118.21	77.98	82.31
Value of Corporation Debt	14.89	15.8 0	8.30	14.70	32.50	35.80

Data Source: Almanac of China's Finance and Banking (2004)

Personality and Cross-Cultural Adjustment among Expatriate Assignees in Malaysia

Subramaniam Sri Ramalu (corresponding author)

College of Business, Universiti Utara Malaysia, 06010 UUM Sintok Kedah, Malaysia

Raduan Che Rose

Department of Management and Marketing, Faculty of Economics and Management

Universiti Putra Malaysia, 43400, UPM SERDANG, Selangor, Malaysia

E-mail: rcr@econ.upm.edu.my

Jegak Uli

Department of Professional Development and Continuing Education

Faculty of Educational Studies, Universiti Putra Malaysia, 43400, UPM SERDANG, Selangor, Malaysia

E-mail: jegak@ace.upm.edu.my

Naresh Kumar

Department of Management and Marketing, Faculty of Economics and Management

Universiti Putra Malaysia, 43400, UPM SERDANG, Selangor, Malaysia

E-mail: naresh@econ.upm.edu.my

Abstract

This paper investigates the affects of personality traits on expatriate cross-cultural adjustment. Based on sample of 332 expatriates working in Malaysia, personality factor found to be a significant determinant of expatriate cross-cultural adjustment in international assignments. Specifically, the results of this study reveal that expatriates in Malaysia with greater agreeableness personality fared better in their general and interaction adjustment. Those with greater extraversion found to adjust better in general environment. Those with greater conscientiousness and openness to experience adjusted better to the work environment. The findings of this study contributes to the body of knowledge in the cross-cultural management field and have practical implication to expatriating firms especially in the area of selection and training of candidates for international assignments.

Keywords: Personality, Cross-Cultural Adjustment, Expatriate

1. Introduction

The economic globalization has witnessed MNCs effort to increase their international activity and presence (Maertz, Hassan & Magnusson, 2009). This effort requires presence of globally competent workforce, and with it, the intensive use of expatriates. Expatriates identified as sojourner who leaves his or her country, under assignment, for business purpose, with the intent of eventual return (Aycan & Kanungo, 1997). Global Relocation Trends Survey (2008) conducted by GMAC Global Relocation Services reported that 67 per cent of companies have increased the size of their current international assignee population compared to 31 per cent in 2004.

The extensive use of expatriates, however, has created challenges for MNCs to manage expatriate assignments. This is because, firstly, the cost of sending expatriates and their families abroad are extremely high. For example, a three-year assignment for one expatriate estimated to cost approximately one million dollars (Allerton, 1997). Secondly, the rate of expatriate failure is alarming. A variety of studies examining the premature return of mostly American expatriates found that between 16 and 40 per cent of all assignment terminated early (Caligiuri, 1997). In addition to quantifiable cost, there are additional cost associated with lost business opportunities, reduced productivity, and damage corporate relationship that in the long run could cost the MNCs much more (Storti, 2001).

It is for these reasons that research on expatriate cross-cultural adjustment (CCA) has gained considerable attention (e.g., Tung, 1987; Black, Mendenhall, & Oddou, 1991; McEvoy & Parker, 1995; Black & Gregersen, 1999; Shaffer, Harrison & Gilley, 1999; Takeuchi, Yun & Tesluk, 2002). Generally, the results of these studies

indicated that if expatriates do not adjust well to the host culture, they might depart prematurely (Tung, 1982; Black & Stephens, 1989; McEvoy & Parker, 1995). Others may remain in the assignment and demonstrate poor job performance due to dysfunctional adjustment (Kraimer, Wayne & Jaworski, 2001; Shaffer, Harrison, Gregeren, Black & Ferzandi, 2006).

Research identifying the correlates/predictors of expatriate CCA found factors related to individual, job, organizational, and situational are important contributing elements (Black et al., 1991; Shaffer, Harrison & Gilley, 1999; Bhaskar-Shrinivas, Harrison, Shaffer & Luk, 2005). In this research realm, individual differences of personality trait appear to gained considerable attention (Caligiuri, 2000b; Ward, Leong & Low, 2004; Huang, Chi & Lawler, 2005; Swagler & Jome, 2005; Shaffer et al., 2006). Personality trait believed to be a reliable predictor of workplace behavior in the international setting similar to what has found in domestic research. The recent emergence of a unified, well-developed theory of personality, referred to as the Big Five Personality (Costa & McCrae, 1992) particularly has provided the opportunity to test the relationship between personality and expatriate CCA.

This paper is concerned with how personality trait affects the CCA of expatriates assigned to Malaysia. Although a number of studies have been conducted on the relationship between personality and CCA (Caligiuri, 2000b; Ward et al., 2004; Huang et al., 2005; Swagler & Jome, 2005; Shaffer et al., 2006), it is still uncertain whether personality factor is the determinant of CCA. Moreover, in exception to Tahir and Ismail (2007), no study conducted in Malaysia. We believe that expatriate population in Malaysia is worth investigating, particularly because the country has become one of the preferred FDI destinations in the South East Asia region (MIDA, 2009). This indicates that the country will have to face a continuous increase in number of expatriates admitted to various sectors of employment. There were 35,583 approved expatriate postings in Malaysia in year 2007 alone (Malaysia, 2008). The growing trend in the number of expatriates and international assignments in Malaysia has heightened the need for research to understand how expatriates adapt and perform during their assignments in Malaysia. The purpose of this study therefore is to investigate how personality related to CCA of expatriates assigned to Malaysia.

2. Literature Review

2.1 Personality

Personality defined as enduring emotional, interpersonal, experiential, attitudinal, and motivational style that explains individual's behavior in different situations (McCrae & Costa, 1989). A review of the Industrial/Organizational psychology literature suggests that the sum of all personality characteristics can be categorize in five basic trait dimensions- extraversion, conscientiousness, agreeableness, openness to experience and neuroticism. These five trait dimensions subsequently labeled as the Big Five Personality (Hough, 1992; Digman, 1997).

The first dimension, extraversion, has been related with heightened level of sociability. Individuals high on extraversion tend to like groups and gatherings, to be talkative and energetic and generally to be more active and assertive (Costa & McCrae, 1992). An extravert person considered sociable and outgoing with others (Huang et al., 2005). Conscientiousness dimension described as a form of conformity to rules and standards, and linked to traits like responsibility, organization, hard work, impulse control, and prudence (Barrick & Mount, 1991; Hogan & Ones, 1997). Individuals high on conscientiousness is also dependable and trustworthy (Costa & McCrae, 1992). The third dimension, agreeableness has been associated with conformity with others and friendliness in the interpersonal setting (Hogan & Hogan, 1986; Digman, 1990). Individuals high on agreeableness tend to be more helpful and sympathetic towards others, as well as more trusting of the intentions of other people (Costa & McCrae, 1992). According to Laursen, Pulkkinen and Adams (2002), agreeableness trait related to higher levels of social compliance and self-control, and lower levels of aggression. The fourth dimension, openness to experience appears to be a personality trait that reflects individuals' habitual willingness to try new ideas, tolerate ambiguity and dissonance, and generally be curious and eager to learn (Barrick & Mount, 1991). Individuals high on openness to experience tend to be open minded, original in thought, intelligent, imaginative, and non-judgmental. Finally, neuroticism personality is associated with lessened emotional control and stability (Mount & Barrick, 1995). Neurotic individuals tend to have relatively negative core self-evaluations, leading to emotional distress and associated behaviors (Rusting & Larsen, 1998). Neuroticism also related to a person's general tendency to experience negative effects such as fear, sadness, embarrassment, anger, guilt, and disgust (Dalton & Wilson, 2000).

Albeit limited, the available studies have linked personality factor with various expatriate outcomes such CCA (Shaffer et al., 2006), job performance (Mol, Born, Willemsen & Van Der Molen, 2005) and premature return from assignment (e.g., Caligiuri, 2000a).

2.2 Cross-Cultural Adjustment

Cross-cultural adjustment conceptualized as the degree of psychological comfort an expatriate has with the various aspects of a host culture (Black & Stephens, 1989; Gregersen & Black, 1990). Three specific areas of CCA distinguished in the literature (Black & Stephens, 1989): Adjustment to (1) general environment (degree of comfort with general living conditions, such as climate, health facilities, and food); (2) interaction with host country nationals; and (3) work (performance standards, job, and supervisory responsibilities).

Cross-cultural adjustment suggested as a key determinant of expatriate success in their international assignments. Past research indicated that CCA is a temporal and primary outcome in an expatriate's assignment that would influence the development of secondary or more distal expatriate adjustment. Among the spillover effects of CCA are strain (e.g., Hechanova, Beehr & Christiansen, 2003), job satisfaction (e.g., Takeuchi, Yun, & Tesluk, 2002), organizational commitment (e.g., Nauman, 1993; Shaffer & Harrison, 1998), job performance (e.g., Shay & Baack, 2006; Kim & Slocum, 2008), and premature return from assignment (e.g., Black & Stephens, 1989; Hechanova et al., 2003).

2.3 Hypotheses Development

Considerable research has indicated a relationship between personality factor and CCA (e.g., Ali, Van der Zee & Sanders, 2003; Ward et al., 2004; Huang et al., 2005; Swagler & Jome, 2005; Shaffer et al., 2006). In general, these results show that certain personality traits positively related to CCA. Emotional stability for instance positively related to psychological adjustment (Ali et al., 2003) and both the interaction and work adjustment (Shaffer et al., 2006). Openness to experience predicted work adjustment (Shaffer et al., 2006) and, for expatriate spouses, related to psychological and socio-cultural adjustment (Ali et al., 2003). Extraversion, agreeableness and conscientiousness also positively relate to CCA (Searle & Ward, 1990; Shaffer et al., 2006), although do not always contribute to the same domains of CCA. For example, agreeableness predicted interaction adjustment, whereas extraversion and conscientiousness were more relevant to general adjustment (Shaffer et al., 2006).

Drawing from the evolutionary personality psychology theory (Buss, 1991), the Big Five personality characteristics has been linked with universal adaptive mechanisms that allow individuals to adapt with and meet the demands of physical, social and cultural environments. These adaptive mechanisms include humans' ability to learn hierarchies in society (Extroversion), "their willingness to cooperate (Agreeableness), their capacity for reliable work and enduring commitment (Conscientiousness), their ability to handle stress (Emotional Stability), and their propensity for innovation or astuteness in solving problems (Openness, Intellect)" (Buss, 1991, cited in Caligiuri, 2000a, p.71). Hence, individuals who possess the appropriate personality trait expected to adjust effectively to new cultural contexts abroad (Caligiuri, 2000a). Further, Leiba-O'Sullivan (1999) indicated that personality, as a stable disposition is a vital intercultural competency to facilitate individual adaptation to new cultural setting.

Additionally, based on stress management theories of psychological stress (Cohen, 1988) perspective, since intercultural interactions involves a series of stress-provoking life changes that draw on adjustive resources and require coping responses; CCA, therefore, is conceptualized by successfully coping with change. Certain personality traits such as emotional stability, agreeableness and extraversion helps to negate psychological stress, thus leads to higher level of CCA (Black, 1990; Aryee et al., 1996; Wan, Hui & Tiang, 2003). Broadly, it can be conclude that the Big Five personality is a valid predictor of CCA. In order to establish the relationship between personality and CCA, we have decided to test the presumed relationship as follows:

H1: There is a positive relationship between personality and cross-cultural adjustment.

Specifically, (H1a) extraversion, (H1b) agreeableness, (H1c) conscientiousness, (H1d) openness to experience, and (H1e) emotional stability will relate positively to (i) general adjustment, (ii) interaction adjustment and (iii) work adjustment.

3. Methodology

3.1 Sample

The participants in the study were expatriates currently working and residing in Malaysia. Various Directories of International Business Chamber of Commerce/Business Councils in Malaysia (e.g., Directory of The American Malaysian Chamber of Commerce) and Directory of Foreign Companies in Malaysia used as a sampling frame

of this study. Using the probability sampling technique of systematic sampling, a total of 500 mail and 500 online questionnaires distributed to intended respondents. Of these, 339 questionnaires replied. The initial response rate was 34%, which is consistent with other typical response rates (20-30%) in most expatriate studies (e.g., Harrison & Shaffer, 2005). Out of 339, 7 were unusable responses, resulting in final sample of 332, representing a 33% return rate. The sample included 252 (75.9%) men and 80 (24.1%) women. Participants age included 122 (36.7%) between 42-52 and 103 (31.0%) between 31-41 years old. Participants marital status included 251 (75.6%) married and 54 (16.3%) unmarried. In terms of prior overseas experience, 251 (75.6) have previous international experience and 81 (24.4%) have no experience. Participants job status included 169 (50.9%) in managerial position and 163 (49.1%) in non-managerial position. Participants education status included 119 (35.8%) with degree and 85 (25.6%) with masters degree. Distribution of sample by industry sector included 112 (33.7%) working in service sector, 109 (32.8%) in other sector and 84 (25.3%) in manufacturing. Participants length of stay in Malaysia ranged from 2 to 24 years (M=4.80, SD=3.40). Tenure with present organization ranged from 2 to 25 years (M=7.25, SD=4.45). The participants came from various countries with majority 51 (15.4%) are from India, 39 (11.7%) from UK, 32 (9.6%) from Australia, and 200 (63.3%) from some other 42 countries.

3.2 Instrumentation

Four background variables (i.e. gender, prior overseas experience, length of stay in Malaysia and language proficiency) identified as correlates of expatriate attitudes and behaviors controlled in this study (Hechanova et al., 2003; Shaffer & Harrison, 1998). This is to avoid the findings of this study from be spuriously attributed to various background characteristics.

The independent variable, personality measured with the 44-item, self-reported Big Five Inventory (BFI) adopted from John and Srivastava (1999). The scale includes eight items for extraversion, nine for agreeableness, nine for conscientiousness, eight for neuroticism, and ten for openness to experience personality dimension. Sample item include "I see myself as someone who has an assertive personality" for extraversion; "I see myself as someone who is helpful and unselfish with others" for agreeableness; "I see myself as someone who is a reliable worker" for conscientiousness; "I see myself as someone who can be moody" for neuroticism; and "I see myself as someone who is original, comes up with new ideas" for openness to experience personality. Respondents were asked to use a seven-point Likert-type scale range from strongly disagree (1) to strongly agree (7) to indicate the extent to which each item describes their characteristic. Cronbach's alpha for this scale was 0.83 (John & Srivastava, 1999).

The dependent variable, CCA measured with 14-item, self-reported Expatriate Adjustment Scale adopted from Black and Stephens (1989). Seven items assessed general adjustment (e.g. housing, food, and shopping); four items assessed interactions adjustment (e.g. socializing with people from the host culture); and three items assessed work adjustment (e.g. job responsibilities and performance standards/expectations). Respondents asked to use a seven-point Likert-type scale to indicate the extent to which each item indicates their adjustment to various living and working conditions in Malaysia. Response choice alternatives ranged from 1 (very unadjusted) to 7 (completely adjusted). Cronbach's alphas for general adjustment, interactions adjustment, and work adjustment were 0.91, 0.82, and 0.86 respectively (Black & Stephens, 1989).

4. Results

Table 1 presents the means, standard deviations, reliability coefficients, and bivariate correlations among the study variables. Personality was positively related to CCA (r = 0.28, p<0.05). Correlations between dimensions of personality and dimensions of CCA reveal that agreeableness personality was correlated positively with general, interaction and work adjustment (r ranges from 0.18 to 0.21, all ps<0.05). Extraversion personality correlated positively with general (r =0.23, p<0.05) and interaction adjustment (r =0.11, p<0.05). Conscientiousness personality was correlated positively with general (r =0.13, p<0.05) and work adjustment (r =0.26, p<0.05). Openness to experience personality was correlated positively with general, interaction and work adjustment (r ranges from 0.16 to 0.20, all ps<0.05). Emotional stability was correlated positively with general (r =0.16, p<0.05) and work adjustment (r =0.22, p<0.05) (opposite pole of neuroticism personality).

H1 predicted that there is a positive relationship between personality and CCA. A hierarchical regression conducted to test the hypothesis (See Table 2). When the control variables were entered in the first step, the regression model was statistically significant, R^2 = .167, Adjusted R^2 = .157, F(4, 327) = 16.393, p < 0.05. Length of stay in Malaysia (β = .231) and language proficiency (β = .310) both ps <0.05 were positively related to CCA. When personality was added to the model in Step 2, the full model was statistically significant, R^2 = .240, Adjusted R^2 = .228, F(5, 326) = 20.546, p < 0.05. Again, length of stay in Malaysia (β = .244) and

language proficiency (β = .292) both ps <0.05 were positively associated with CCA, indicating that those who had been in Malaysia for a longer period of time and proficient in language tended to have better CCA. Personality was statistically significant (β = .277, p < 0.05). This indicates that individuals with higher level of personality tended to have better CCA. This finding supports the hypothesis H1. In addition, the change in R^2 between Step 1 and Step 2 was significant (ΔR^2 =.073, p< 0.05) indicating that personality explains an additional 7.3 per cent of the variance in CCA, even when the effects of the control variables are statistically controlled.

To test the sub-hypotheses 1 it requires an examination on the relationship between dimensions of personality and dimensions of CCA. Again, a hierarchical regression analysis conducted (See Table 3). Agreeableness personality was positively associated with general (β = .112) and interaction adjustment (β = .160) both ps <0.05. This indicates that individuals with higher levels of agreeableness personality tended to have higher level of general and interaction adjustment. Extraversion personality was positively associated with general adjustment (β = .149, p < 0.05), indicating that higher the extraversion personality, higher the general adjustment will be. Conscientiousness (β = .137) and openness to experience personality (β = .145) both ps <0.05 were positively associated work adjustment, indicating that those higher in conscientiousness and openness personality tended to have higher level of work adjustment. These findings support hypothesis H1a (i), H1b (i), (ii), H1c (iii) and H1d (iii).

The change in R^2 between Step 1 and Step 2 was significant for all three dimensions of CCA, general (ΔR^2 =.067), interaction (ΔR^2 =.041) and work adjustment (ΔR^2 =.093) all ps <0.05. This indicates that agreeableness, extraversion, conscientiousness, neuroticism, and openness to experience personality together explain an additional 6.7, 4.1, and 9.3 per cent of the variance in general, interaction, and work adjustment respectively, even when the effects of the control variables are statistically controlled.

5. Discussion and Conclusion

The purpose of this paper is to enhance our knowledge on the individual determinant of CCA among expatriates assigned to Malaysia. Specifically, this study explored the affects of personality trait on CCA. The results indicated that after accounting for control variables of gender, prior overseas experience, duration of stay in the host country and language fluency, personality trait significantly related to CCA. In this study, greater general adjustment among expatriates is associated with greater extraversion and agreeableness personality. Greater interaction adjustment related to being greater agreeableness while greater work adjustment related to greater conscientiousness and openness to experience personality. In general, the findings of the present study are consistent with results of prior studies (e.g., Caligiuri, 2000b; Ward et al., 2004; Huang et al., 2005; Swagler & Jome, 2005; Shaffer et al., 2006).

The significant positive relationship found between extraversion personality and general adjustment implies that greater the extraversion personality, greater the general adjustment will be. The results of this study is in line with findings of Huang et al. (2005) that being gregarious, assertive, active and talkative (Barrett & Pietromonaco, 1997), extravert individuals will assert themselves to establish relationships with both host country nationals and other expatriates hence effectively learn the social culture of the host country. The cultural knowledge gained through the interaction process provides a framework for understanding and comparing different cultures (Johnson, Lenartowicz & Apud, 2006) and in turn, facilitate the general adjustment to the new cultural environment in Malaysia. Agreeableness personality found positively related to general and interaction adjustment, hence implies that greater the agreeableness personality, greater the general and interaction adjustment will be. Shaffer et al. (2006) argued that individuals high on agreeableness personality generally have the tendency to get along well with others in interpersonal settings, hence, facilitate effective communication and relationship with host country nationals and other expatriates. This in turn, should alleviate the stress associated with adapting to various aspects of the new cultural environment. As expected, conscientiousness personality found positively related to work adjustment. This implies that greater the conscientiousness personality, greater the work adjustment will be. Shaffer et al. (2006) contended that motivated to achieve, individual high on conscientiousness personality more likely to spend time on tasks and meet job expectations even in the face of obstacles or personal problems (Ones & Viswesvaran, 1997), hence such task-oriented behaviors may result in better work adjustment. In line with the prediction, openness to experience personality positively related to work adjustment. This implies that greater the openness personality, greater the work adjustment will be. According to Huang et al. (2005), individuals who defined as open to experience are generally open minded, curious, original in thought, intelligent, imaginative and non-judgmental (Mount & Barrick, 1995), hence they tend to be more curious and eager to learn to adapt to work and non-work related aspects in a new cultural environment in Malaysia.

Given these results, there are few implications for organizations and individuals considering international assignments. The significant positive relationship between personality and CCA suggest that personality is important stable intercultural competency in enhancing expatriate CCA (Leiba-O'Sullivan, 1999). Expatriating firms can consider the use of selection methods that include testing for personality traits of agreeableness, extraversion, conscientiousness, and openness to experience in finding prospective expatriates for international assignments. However, it is necessary to consider personality traits in relation to host country culture. The findings of this study have provided evidence that individuals high on agreeableness, extraversion, conscientiousness, and openness to experience personality adjust effectively to various aspects of new cultural environment when assigned to host culture predominantly collective in nature such as Malaysia (Hofstede, 1991). In addition to selection, cross-cultural training is also an available HR intervention to improve the likelihood of expatriate CCA. MNCs should think of selection based on personality as the precursor to cross-cultural training. That is, MNCs should identify those expatriate candidates with the requisite personality characteristics, and then offer cross-cultural training to those identified. Cross-cultural training may only be effective when the expatriates are predisposed to success in the first place.

This study has certain limitations that provide venues for future research. First, CCA is not the only criterion for expatriate effectiveness. Other important criterion such as job performance, job satisfaction, organizational commitment, and turnover intention should also be included in the future study. Second, we acknowledge that some concerns might exist in that self-reported measures have social desirability and common method bias problem. Therefore, future research should include assessment from multiple sources including peers, subordinates, and superiors. Third, a cross-sectional study design restricts the ability to prove a cause-effect relationship. Future research should consider longitudinal study if replication of this study is to establish the predictive functions of personality trait over time and space. Third, this study did not consider the possible moderating effects of the contextual factors on the predictor-outcome relationships. Potential moderators such as cultural distance (i.e. home vs. host country), assignment type (e.g., managerial vs. non-managerial), assignment tenure and prior overseas experience may help to further enhance our understanding about the phenomenon under investigation.

References

Ali, A., Van der Zee, K. & Sanders, G. (2003). Determinants of intercultural adjustment among expatriate spouses. *International Journal of Intercultural Relations,* Vol.27, pp.563-580.

Allerton, H. (1997). Expatriate gaps. *Training & Development, July*, 7-8.

Aryee, S., Chay, Y. W. & Chew, J. (1996). An investigation of the willingness of managerial employees to accept an expatriate assignment. *Journal of Organizational Behavior,* Vol.17(3), pp.267-283.

Aycan Z. & Kanungo R.N. (1997). Current issues and future challenges in expatriate management. In Saunders DM, Aycan Z (Eds.), *New approaches to employee management* (Vol. 4, pp. 245-260). Greenwich, *CT:* JAI Press.

Barrett, L.F. & Pietromenaco, P.R. (1997). Accuracy of the Five-factor Model in Predicting Perceptions of Daily Social Interactions. *Personality and Social Psychology Bulletin*, 23(11), 1173-1187.

Barrick, M.R., & Mount, M.K. (1991). The Big Five personality dimensions and job performance. *Personnel Psychology,* 41, 1-26.

Bhaskar-Shrinivas, P., Harrison, D.A., Shaffer, M.A., & Luk, D.M. (2005). Input-based and time-based models of international adjustment: Meta-analytic evidence and theoretical extensions. *Academy of Management Journal,* 48*,* 259-281.

Black, J.S. (1990). The relationship of personal characteristics with the adjustment of Japanese expatriate managers. *Management International Review*, 30,119-134.

Black, J.S., & Gregersen, H.B (1999). The right way to manage expatriates. *Harvard Business Review*, 77, 52-63.

Black, J.S., Mendenhall, M., & Oddou, G. (1991). Toward a comprehensive model of international adjustment: an integration of multiple theoretical perspectives. *Academy of Management Review,* 16 (2), 291–317.

Black, J.S., & Stephens, G.K. (1989). The influence of the spouse on American expatriate adjustment and intent to stay in Pacific Rim overseas assignments. *Journal of Management,* 15, 529–544.

Buss, D.M. (1991). Evolutionary personality psychology. In M.R. Rosenzweig & L.W. Porter (Eds.), *Annual Review of Psychology*, Vol. 42, pp.459-492. Palo Alto, CA: Annual Reviews Inc.

Caligiuri P.M. (1997). Assessing expatriate success: Beyond just "being there." In Saunders DM, Aycan Z (Eds.), *New approaches* to *employee management* (Vol. 4, pp. 117-140). Greenwich, *CT:* JAI Press.

Caligiuri, P.M. (2000a). The Big Five personality characteristics as predictors of expatriate's desire to terminate the assignment and supervisor-rated performance. *Personnel Psychology,* 53, 67-88.

Caligiuri, P.M. (2000b). Selecting expatriates for personality characteristics: A moderating effect of personality on the relationship between host national contact and cross-cultural adjustment. *Management International Review*, 40(1), 61-80.

Cohen, S. (1988). Aftereffects of stress on human performance and social behavior: A review of research and theory. *Psychological Bulletin,*Vol. 88, pp. 82-108.

Costa, P.T., Jr., & McCrae, R.R. (1992). *Revised NEO Personality Inventory and NEO Five Factor Inventory: Professional Manual.* Odessa, FL: PAR.

Dalton, M., & Wilson, M. (2000). The relationship of the five-factor model of personality to job performance for a group of Middle Eastern expatriate managers. *Journal of Cross-Cultural Psychology*, 31, 250-258.

Digman, J.M. (1990). Personality structure: Emergence of the five-factor model. In M. R. Rosenzweig& L.W. Porter (Eds.), *Annual review of psychology* (Vol. 41, pp. 417-440). Palo Alto, CA: Annual Reviews.

Digman, J.M. (1997). Higher-order factors of the big five. *Journal of Personality and Social Psychology*, 73, 1246-1256.

GMAC Global Relocation Services. The 2008 Global Relocation Trends Survey Report, GMAC Global Relocation Services LLC.

Gregersen, H.B., & Black, J.S. (1990). A multifaceted approach to expatriate retention in international assignments. *Group and Organization Studies*, 15, 461-485.

Harrison, D.A., & Shaffer, M.A. (2005). Mapping the criterion space for expatriate success: Task-based and relationship-based performance, effort and adaptation. *International Journal of Human Resources Management*, 16, 1454-1474.

Hechanova, R., Beehr, T.A., & Christiansen, N.D. (2003). Antecedents and consequences of employees' adjustment to overseas assignments: A meta-analytic review. *Applied Psychology*, 52, 213-236.

Hofstede, G. (1991). *Cultures and organizations: Software of the mind*. London: McGraw-Hill.

Hogan, J., & Hogan, R. (1986). *Hogan Personnel Selection Series Manual*. Tulsa, OK: Hogan Assessment Systems.

Hogan, J., & Ones, D.S. (1997). Conscientiousness and integrity at work. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 849-870). New York: Academic Press.

Hough, L.M. (1992). The "Big Five" personality variables-construct confusion: Description versus prediction. *Human Performance,* 5, 139-156.

Huang, T.J., Chi, S.C., & Lawler, J.J. (2005). The relationship between expatriate's personality traits and their adjustment to international assignments. *International Journal of Human Resource Management*, 16, 1656-1670.

Immigration Department of Malaysia (2008). *Expatriate Statistical Report Dated from 01/01/2007 to 31/12/2007*. Employment Pass Section, Immigration Department, Malaysia.

John, O.P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspective. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102-138). New York: Guilford.

Johnson, J.P., Lenartowicz, T., & Apud, S. (2006). Cross-cultural competence in international business: towards a definition and a model. *Journal of International Business Studies*, 37, 525-543.

Kim, K., & Slocum, J.W. (2008). Individual differences and expatriate assignment effectiveness: The case of U.S. based Korean expatriates. *Journal of World Business*, 43, 109-126.

Kraimer, M.L., Wayne, S.J., & Jaworski, R.A. (2001). Sources of support and expatriate performance: The mediating role of expatriate adjustment. *Personnel Psychology,* 54, 71-99.

Laursen, B., Pulkkinen, L., & Adams, R. (2002). The antecedents and correlates of agreeableness in adulthood. *Developmental Psychology*, 38, 591-603.

Leiba-O'Sullivan, S. (1999). The distinction between stable and dynamic cross-cultural competencies: implications for expatriate trainability. *Journal of International Business Studies*, 30(4), 709-725.

Maertz, C.P., Hassan, A., & Magnusson, P. (2009). When learning is not enough: A process model of expatriate adjustment as cultural cognitive dissonance reduction. *Organizational Behavior and Human Decision Processes,* 108, 66–78.

Malaysian Industrial Development Authority (2009). Industry leaders: Malaysia offers significant cost advantage

for regional establishments. [Online] Available: http://www.mida.gov.my (October 6, 2009).

McCrae, R.R., & Costa, P.T., Jr. (1989). Reinterpreting the Myers-Briggs Type Indicator from the perspective of the five-factor model of personality. *Journal of Personality*, 57, 17-40.

McEvoy, G.M., & Parker, B. (1995). Expatriate adjustment: Causes and consequences. In Selmer J (Ed.), *Expatriate management: New ideas for international business* (pp. 97-114). Westport, CT*:* Quorum Books.

Mol, S.T., Born, M.P., Willemsen, M.E., & Van Der Molen, H.T. (2005). Predicting expatriate job performance for selection purposes: A quantitative review. *Journal of Cross-Cultural Psychology*, 36(5), 590-620.

Mount, M.K., & Barrick, M.R. (1995). The Big Five personality dimensions: Implications for research and practice in human resources management. In K. M. Rowland & G. Ferris (Eds.), *Research in personnel and human resources management* (Vol. 13, pp. 153-200). Greenwich, CT: JAI Press.

Naumann, E. (1993). Antecedents and consequences of satisfaction and commitment among expatriate managers. *Group and Organization Management*, 18(2), 153-187.

Ones, D.S., & Viswesvaran, C. (1997). Personality determinants in the prediction of aspects of expatriate job

success. In Z. Aycan (Ed.), *New approaches to employee management: Vol. 4. Expatriate management: Theory and research* (pp. 63–92). Stamford, CT: JAI Press.

Rusting, C.L., & Larsen, R.J. (1998). Personality and cognitive processing of affective information. *Personality and Social Psychology Bulletin,* 24, 200-213.

Searle,W. & Ward, C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations,* 14, 449-464.

Shaffer, M.A., & Harrison, D.A. (1998). Expatriates' psychological withdrawal from international assignments: Work, nonwork, and family influences. *Personnel Psychology,* 51, 87-118.

Shaffer, M.A., Harrison, D.A., & Gilley, K.M. (1999). Dimensions, determinants, and differences in the expatriate adjustment process. *Journal of International Business Studies,* 30, 557–581.

Shaffer, M.A., Harrison, D.A., Gregersen, H., Black, J.S., & Ferzandi, L.A. (2006). You can take it with you: Individual differences and expatriate effectiveness. *Journal of Applied Psychology,* 91, 109-125.

Shay, J.P., & Baack, S. (2006). An empirical investigation of the relationships between modes and degree of expatriate adjustment and multiple measures of performance. *International Journal of Cross Cultural Management*, 6 (3), 275-294.

Storti, C. (2001). *The Art of Crossing Borders*. Nicholas Brealey & Intercultural Press: London.

Swagler, M.A., & Jome, L.M. (2005). The effects of personality and acculturation on the adjustment of North American sojourners in Taiwan. *Journal of Counseling Psychology*, 52 (4), 527-536.

Tahir, A.H.M., & Ismail, M. (2007). Cross-cultural Challenges and Adjustment of Expatriates: A Case Study in Malaysia. *Turkish Journal of International Relations*, 6 (3&4), 72-99.

Takeuchi, R., Yun, S., & Tesluk, P.E. (2002). An examination of crossover and spillover effects of spousal and expatriate cross-cultural adjustment on expatriate outcomes. *Journal of Applied Psychology,* 87, 655–666.

Tung, R. (1982). Selection and training procedures of U.S., European and Japanese Multinationals. *California Management Review*, 25, 57-72.

Tung, R. (1987). Expatriate Assignments: Enhancing Success and Minimizing Failure. *Academy of Management Executive*, 1(2), 117-126.

Wan, D., Hui, T. K. & Tiang, L (2003). Factors affecting Singaporeans' acceptance of international postings. *Personnel Review,* Vol.32(6), pp.711-732.

Ward, C., Leong, C.H., & Low, M. (2004). Personality and sojourner adjustment: An exploration of the Big Five and the cultural fit proposition. *Journal of Cross-Cultural Psychology*, 35, 137-151.

Table 1. Descriptive statistics, reliability coefficients and correlations (N=332)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	0.76	0.43	-													
2. Prior experience	0.76	0.43	0.12*	-												
3. Length of stay	4.80	3.40	0.03	-0.03	-											
4. Language	3.57	0.70	-0.16**	0.21**	0.16**	-										
5. Personality	4.92	0.33	-0.08	0.20**	-0.04	0.11*	(0.71)									
6. Adjustment	5.75	0.58	0.01	0.03	0.28**	0.33**	0.28**	(0.87)								
7. Agreeableness	5.48	0.69	0.32	0.15**	-0.02	0.09	0.62**	0.24**	(0.74)							
8. Extraversion	4.91	0.81	-0.09	0.19**	-0.07	0.16**	0.62**	0.20**	0.26**	(0.76)						
9. Conscientiousness	5.46	0.73	0.08	0.14*	0.01	-0.06	0.69**	0.18**	0.44**	0.34**	(0.77)					
10. Openness	5.36	0.56	-0.05	0.16**	-0.02	0.18**	0.67**	0.24**	0.20**	0.30**	0.35**	(0.73)				
11. Neuroticism	3.16	0.82	-0.15**	-0.17**	-0.00	-0.09	-0.22**	-0.20**	-0.44**	-0.44**	-0.50**	-0.18**	(0.76)			
12. GA	5.71	0.70	-0.05	0.02	0.21**	0.31**	0.24**	0.87**	0.19**	0.23**	0.13*	0.20**	-0.16**	(0.83)		
13. IA	5.66	0.76	0.00	-0.03	0.28**	0.32**	0.17**	0.79**	0.18**	0.11*	0.07	0.16**	-0.09	0.55**	(0.86)	
14. WA	5.98	0.80	0.15**	0.08	0.16**	0.06	0.22**	0.55**	0.21**	0.07	0.26**	0.20**	-0.22**	0.24**	0.29**	(0.90)

Notes: *$p < .05$.   **$p<.01$ GA=general adjustment; IA=interaction adjustment; WA=work adjustment

Coefficient alphas are presented along the diagonal

Table 2. Results of the Hierarchical Regression Analysis with Personality as a Predictor of Cross-Cultural Adjustment (N=332)

Variable	Step 1 β	Step 1 t	Step 1 p	Step 2 β	Step 2 t	Step 2 p
Gender	.063	1.214	.226	.088	1.760	.079
Prior overseas experience	-.038	-.719	.472	-.091	-1.779	.076
Length in Malaysia	.231	4.508	.000	.244	4.960	.000
Language proficiency	.310	5.804	.000	.292	5.701	.000
Personality	-	-	-	.277	5.578	.000

Note: Gender and prior experience are dummy-coded categorical variables.

Step 1 R^2 = .167, Adjusted R^2 = .157, $F(4, 327)$ = 16.393, p = .000; Step 2 R^2 = .240, Adjusted R^2 = .228, $F(5, 326)$ = 20.546, p = .000, ΔR^2= .073, p= .000.

Table 3. Results of the Hierarchical Regression Analysis between Dimensions of Personality and Dimensions of Cross-Cultural Adjustment (N=332)

Variable	General Step 1 β (t)	General Step 2 β (t)	Interaction Step 1 β (t)	Interaction Step 2 β (t)	Work Step 1 β (t)	Work Step 2 β (t)
Gender	-.004(-.084)	.008(.147)	.058(1.118)	.067(1.276)	.149(2.685)**	.126(2.326)*
Prior experience	-.031(-.576)	-.089(-1.672)	-.093(-1.780)	-.132(-2.505)*	.055(.981)	.001(.010)
Length of stay	.167(3.181)**	.186(3.631)***	.230(4.490)***	.244(4.803)***	.146(2.663)**	.146(2.769)**
Language	.291(5.327)***	.251(4.566)***	.314(5.879)***	.281(5.165)***	.050(.880)	.034(.595)
Agreeableness		.112(1.912)*		.160(2.764)**		.096(1.600)
Extraversion		.149(2.521)*		.057(.972)		-.072(-1.186)
Conscientiousness		.015(.236)		-.015(-.237)		.137(2.073)*
Neuroticism		-.011(-.165)		.024(.373)		-.094(-1.422)
Openness		.096(1.718)		.094(1.696)		.145(2.519)*
R^2	.126	.193	.169	.209	.053	.146
Adjt R^2	.116	.170	.159	.187	.041	.122
ΔR^2		.067***		.041**		.093***
F	(4,327)	(9,322)	(4,327)	(9,322)	(4,327)	(9,322)
	11.809***	8.555***	16.592***	9.476***	4.531**	6.097***

Note: *$p < .05$.   **$p<.01$ ***$p<.001$

Gender and prior experience are dummy-coded categorical variables

Group Technology (GT) and Lean Production: A Conceptual Model for Enhancing Productivity

Arash Shahin (Corresponding author)

Department of Management, University of Isfahan, Isfahan, Iran

1.242 Saeb Avenue, 81848-13713, Isfahan, Iran

Tel: 98-311-793-2040   E-mail: arashshahin@hotmail.com

Nassibeh Janatyan

Department of Management, University of Isfahan, Isfahan, Iran

2, Koohsar Avenue, Parvin St, 81998-74651, Isfahan, Iran

Tel: 98-311-232-6037   E-mail: n.janatyan@yahoo.com

Abstract

While Group Technology (GT) has considerable effects on important dimensions of lean production such as production wastes, set up time, quality and inventory management, the relationship between the two subjects has been not been sufficiently addressed in the literature. In this paper, a conceptual model has been proposed for enhancing productivity through the application of Group Technology (GT) in lean production systems. The model includes dimensions of GT and its relationship with lean production goals. Statistical analysis has been conducted and the links in the proposed model have been examined based on a questionnaire. The statistical population included managers of two industrial companies. The results confirm the high correlation between the elements of the proposed model in both companies. Also, the results of the variance analysis imply that except two items of the questionnaire, there is no difference in other items between the two companies.

Keywords: Group technology, Lean production, Productivity, Relationship, Model

1. Introduction

In the intensive competitive environment of the global economy, the survival of even the most well-established world class manufacturers depends on the ability to continuously improve quality while reducing costs. The resulting higher productivity is the key to market leadership and gaining sustainable competitive advantage. In this respect, changing production methods from mass-production with high inventory to a leaner operation with low inventory has become an essential practice for successful manufacturers such as General Electric and United Technology Corporation among others (Sim and Rogers, 2009).

Lean manufacturing is a leading manufacturing paradigm in many sectors of world economy where improving product quality, reducing production costs and being first to market and quick respond to customers' needs are critical to competitiveness and business success. In its most basic form, lean manufacturing is the systematic elimination of waste from all aspects of an organization to optimize manufacturing process. The basic underlying idea of 'lean' is to minimize the consumption of resources that add no value to a product (Shahin and Alinavaz, 2008). This concept originated in the Japanese manufacturers systems after World War II. When Japanese manufacturers realized that they could not afford the huge investments of the required building facilities similar to those in USA, They tried an unconventional path to reach greater heights. The Japanese started questioning some of the basic manufacturing assumptions then began the long process of developing and refining manufacturing process in order to minimize waste in operation processes. Lean manufacturing initiatives, which are also known as the Toyota production system, were originated by Ohno (1978) and Shingo at Toyota (Shingo, 1989). They used the Japanese word, 'muda', which they defined as any human activity that absorbs resources but creates no value (Dettmer, 2008). Womack et al. (1990) coined the term 'lean production' in their book entitled 'The machine that changed the world'. The systematic attack on waste is also a systematic assault on the elements underlying poor quality and fundamental management problems (Childerhouse and Towill, 2002). In the internal manufacturing context, another major contribution was made by Monden (1998); he suggested a novel scheme of classifying operations in to three generic categories as non-value adding, necessary but non-value adding and value adding operations. This scheme proved to be more generic and was extended to different areas. Value stream and lean initiatives researchers have also been exploring other ways such as using the theory of constraints, system dynamics and simulation, mathematical and expert system-based approaches. The major focus of their work is the same, i.e. how to minimize inventory and to insure its visibility in the pipeline in different industrial scenarios. In this context, the work of Towill (1997) regarding the principles of

good practice for material flow engineering and system design methodologies seems important. Another important work by Towill (1997) regarding the design principles of supply chains is also considerable (Seth and Gupta, 2005). Decades ago, the lean production concept (Womack et al., 1990; Shingo, 1989) was viewed as a counter-intuitive alternative to traditional manufacturing models (Hayes and Pisano, 1994). Today it is arguably the paradigm for operations and its influence can be found in a wide range of manufacturing and service strategies (Womack and Jones, 1996). Yet, despite its pre-eminence, the lean production model and the research that informed it, raised a number of theoretical and methodological concerns (Williams et al., 1992). Some authors have made attempts to define the concept (e.g. Lewis, 2000; Hines et al., 2004), while others have risen the question of whether the concept is clearly defined (Petersen, 2009). Forza in 1996 highlighted the differences of work organization in lean production and traditional plants. Lewis (2000) suggested that being 'lean' can curtail the firm's ability to achieve long-term flexibility and sustainable competitive advantage. Spithoven (2001) discussed the relation between lean production and disability and he claimed that the lean production appears to be more stressful than production in a traditional firm. This possibly influenced the rise of disability in the 1980s and 1990s. In 2003, the environmental protection agency had a research on lean manufacturing and the environment and had recommendations for leverage of better environmental performance. Seth and Gupa (2005) noticed the application of value stream mapping for lean operations and cycle time reduction. Black (2007) suggested four design rules for implementing the Toyota production system or what is now known worldwide as lean production. Shewchuk (2007) described the characteristics of lean production and proposed worker allocation algorithm in lean U-shaped production line to provide optimal solution. Fullerton and Wempe (2009) examined how utilization of non-financial manufacturing performance measures impacts the lean manufacturing/financial performance relationship. The results provided substantial evidence that utilization of this method mediates the relationship between lean manufacturing and financial performance. Riezebos et al. (2009) reviewed the role of IT in achieving the principles of Lean Production, which included the use of IT in production logistics, computer-aided production management systems and advanced plant maintenance. Petersen (2009) investigated the definition of lean production and the methods and goals associated with the subject as well as how it differs from other popular management concepts.

Recently, manufacturer problems (stagnation, energy crisis, pollution, skillful labors, rapid changes in product design and technical innovation) lead the production systems to eliminate redundancies, reduce waste and increase productivity and enhance their manufacturing performance. The development of manufacturing systems and changes and variety of customers' interests, push companies to produce various products with high capacities. Therefore, manufacturing systems must be changed from job shop and mass production systems to new systems. In this respect, many manufacturing companies have noticed the effectiveness of 'Group Technology (GT)'. It is the best production system to produce various products in large amounts with high productivity (Ham et al., 1985). This subject is a process based philosophy with the principle of similar processing of similar products (Askin and Standridge, 1993). In 1925, Flanders described the application of product oriented department in manufacturing standard product with less transportation and Snead (1989) assumed it was the beginning of GT application. Burbridge (1975) developed a systematic approach on the basis of classifying work pieces and similar pieces in standard similar processes (Askin and Standridge, 1993). Several examples of applying GT to production scheduling can be found in the literature. Oliff and Burch (1985) attempted to reduce product changeover costs that were highly sequence dependent by grouping products into families. Using these groups they successfully reduced changeovers between product families and machine set-up costs. Miller (1991) used it in developing an aggregate production and distribution planning model. Hubbard et al. (1992) incorporated GT into the process flow scheduling technique to guide production of a high-volume repetitive manufacturing system. Additionally, Prasad and Bhadury (1993) applied GT to grouping jobs into families based on the jobs' tool requirements. They reported that the implementation of GT would result in a 16.5 percent improvement in the utilization of the machining centre Al-Salti and Statham (1994) investigated an effective procedure for estimating the process parameters, using historical data from similar components and based on the GT principle. The methodology involved the determination of component code number, family formation, retrieving data, and estimating process parameters. Cheng et al. (1995) formulated a 0-1 quadratic model for producing machine cells and a criterion for forming corresponding part families for GT. Their methodology allows for multiple copies of machine types for which a two-stage procedure was proposed and computational experience of the procedure was reported.

Zhu et al. (1997) described the application of GT in scheduling industrial bag production in a woven products division of a bag manufacturer. This study addressed a new application area of GT which led to a better solution of labor assignments and provided management with valuable information essential to the development of a strategic competitive advantage. Santos and Arauojr (2003) proposed a computational implementation of the

production flow analysis for GT, called 'GroupTech'. Nomden and Van der Zee (2008) proposed Cellular manufacturing (CM) as an application of Group Technology (GT), and assumed physical groupings of machines, each grouping or cell being dedicated to the manufacturing of a product family. The similarities in manufacturing requirements for members of a product family lead to reduced set-ups, less material handling, and more (Burbidge,1975). It is important to add that clarified Virtual Cellular manufacturing (VCM), for functional layout settings where a conversion to Cellular manufacturing (CM). However, instead of a physical re-allocation of machines, CM-VCM aims to reduce set-up times by grouping similar jobs in production planning and control.

Considering the literature review, it is concluded that it seems most of investigations assume GT and CM as synonyms. Although in such resources, CM is addressed as a technique of lean manufacturing, it also seems to be one of the principles of GT is described as physical groupings of machines, each grouping or cell being dedicated to the manufacturing of a product family (Nomden and Van der Zee, 2008).

The aim of this paper is to address how GT can assist managers to achieve lean production goals. For this purpose, in the following, the dimensions of GT and its relationship with lean production goals are demonstrated. A new model is then proposed in which the interrelationships between the elements of the two subjects are addressed. The proposed model is also examined in two companies using a questionnaire and finally the results are discussed and final remarks and future research opportunities are addressed.

2. Lean production

There is no agreement upon definition of lean that could be found in the reviewed literature, and the formulations of the overall purpose of the subject are divergent. Discomforting as this may seem for lean proponents, there seems to be quite good agreement on the characteristics that define the concept, leading to the conclusion that the concept is defined in operational terms alone. However, formulating a definition that captures all the dimensions of lean is a formidable challenge (Pettersen, 2009). Inspiring by waste elimination concepts developed by Henry Ford in the early 1900s, Toyota created an organizational culture focused on the systematic identification and elimination of all waste from the manufacturing process. In the lean context, waste was viewed as any activity that does not lead directly to creating the product or service a customer wants. It is important to note that in many industrial processes, such "non-value added " activity can comprise more than ninety percent of the total activity as a result of time spent waiting, unnecessary "touches" of the product, overproduction, wasted movement, inefficient use of material, energy and other factors. The terms "lean production" or "minimum workshop", as Ohno (1978) states, are inspired by the fact that the lean model requires less stock, less space, less movement of material, less time to set up the machinery, a smaller workforce, fewer computer systems and more frugal technology. As well as responding to the need to be cost effective, this characteristic also constitutes a general principle that inspires a philosophy of essentiality and makes every superfluous element seem wasteful.

2.1. Lean production objectives and benefits

The most frequently mentioned characteristics of lean in the literature review are stated as setup time reduction; continuous improvement; failure prevention (Poka Yoke); and production leveling or heijunka (Shahin and Alinavaz, 2008). According to Seth and Gupta (2005), "The goal of lean manufacturing is to reduce waste in human effort, inventory, time to market and manufacturing space to become highly responsive to customer demand while producing quality products in the most efficient and economical manner". Lean manufacturing results could include reduced inventory level (raw material, work in progress, finished product); decreased material usage (product inputs, including energy, water, metals, etc.); optimized equipment (capital equipment for direct production and support purposes); reduced need for factory facilities (physical infrastructure primarily in the form of building and associated material demands); increased production velocity (the time required to process a product from initial raw material to delivery to a consumer); enhanced production flexibility (the ability to alter or reconfigure products and processes rapidly to adjust to customer needs and changing market circumstances); and reduced complexity (complicated products and processes that increase opportunities for variation and error). Also, lean implementation consistently fosters changes in organizational culture through characteristics such as a continual improvement culture focused on identifying and eliminating waste throughout the production process; employee involvement in continual improvement and problem-solving; operations-based focus of activity and involvement; a metrics-driven operational setting that emphasizes rapid performance feedback and leading indicators; supply chain investment to improve enterprise-wide performance; and a whole systems view and thinking for optimizing performance. Lean methods typically target eight types of waste (Muda). These include defects; waiting; unnecessary processing; over production; movement; Inventory; unused employee creativity; and complexity.

2.2. Lean production principles

The lean production model relates manufacturing performance advantage to adherence to three key principles

(Womack et al., 1990; Womack and Jones, 1996):

i) Improving flow of material and information across business functions;

ii) An emphasis on customer pull rather than organization push (enabled on the shop floor with Kanban); and

iii) A commitment to continuous improvement enabled by people development.

As an evidence of the paradigmatic nature of lean production, it is interesting to note how these originally counter-intuitive principles have become main stream managerial concerns. Yet, beyond these general rules, the definition of lean production is actually rather vague and confused. Attempts to empirically assess progress toward lean production have been forced to develop metrics linking together a wide variety of tools and techniques, many based on opposing principles. For example, Karlsson and Alsthrom (1996) describe 18 different elements (each with their own sub-elements) of lean production and the Andersen Consulting (1993) Lean Enterprise Research required firms to fill in a questionnaire that typically took five-and-a-half-days of managerial time to complete (Oliver et al., 1996). If no improvement technique is excluded, then defining what actually constitutes the lean production process becomes extremely difficult.

3. Group Technology (GT)

Group Technology (GT) is a processing philosophy based on the principle that similar products should be processed similarly (Askin and Standridge, 1993). The basic idea of GT is to decompose a manufacturing system into subsystems. It reduces (Kusiak, 1990) production lead time; work-in process; labor; tooling; rework; scrap material; set-up time; delivery time; and paper work. The idea behind GT is to improve efficiencies by exploiting similarities. The application of GT influences time power of operation, WIP inventory, material handling, job satisfaction, jig and fixture, set up time, required space, quality, finished product and labor cost (Wemmer and Hyer, 1998). This concept has been successfully employed in cellular manufacturing in which, parts with similar processing requirements are identified and grouped into part families, and then machines with different processing capacities are placed within a cell (Kusiak, 1990).

3.1. Principles of GT

GT principles can be applied to a number of different areas. For example, Shafer and Ernst (1993) applied GT principles to warehousing operations. In warehousing operations, efficiency can be improved by locating closer together those stock-keeping units which have a higher probability of being picked simultaneously in the warehouse, thereby reducing the amount of time required to fill a customer order (Ham et al., 1985). In the following, some of the principles of GT are addressed.

3.1.1. Constitute groups of products (part family) and GT cells

Groups of product are the number of products that have the similar design characteristics or similar manufacturing processes. Grouping the products is an important step in the use of this technique. Four main methods for grouping products include manual/visual search; nomenclatures/functions; production flow analysis and classification and coding system.

3.1.2. Design conformance

One of the important and practicable benefits of GT based on proper coding system and classification is refining design information and design justification. Design conformance helps to standardize process plan; group scheduling; group tooling setup; and improve inventory purchasing requirements.

3.1.3. Group production

In order to constitute group production, the following steps should be taken:

i)   Machine group/cell: GT allocates machines for one or more product family in order to produce similar production. The machine group layout base on the similarity of components and production process can be categorized in the following three types:

- Group Technology (GT) flow line: in this layout each of part families has almost the same production line or needs the same machines. Group Technology (GT) flow line is the most logical layout and uses the benefits of product-layout.

- Group Technology (GT) cell: in this layout the production process path for one or some part families is not similar, so it is impossible to use GT flow line. In this layout all equipment, tools and machines that are needed are gathered in a cell. The sequence of process is determined by the required operation.

- Group Technology (GT) center: this layout is similar to process layout. The design of work center is proper to

produce the part family.

ii)   Group tooling: For producing a part family, design group of jig and fixtures are required because of similar tools and similar setups.

iii)   Numerical control and part programming: The concept of GT is related to numerical control machine and it is used in part programming. In numerical control planning, the central computer is used for coordinating between similar programming elements of one part family.

3.1.4. GT and production management

The integration of operation management and GT is necessary to enhance productivity and efficiency. Recently computer-aided design and computer-aided manufacturing (CAD/CAM) are noticed and the use of computer is developed and consequently, the role of GT in CIM is more identified. Thus, operation managers are interested in the implementation of GT in computer-aided process planning and computer-aided group scheduling. Computer-aided process planning is one of the key requirements for implementing CIM successfully. Also, GT simplifies the scheduling problems on the base of grouping products.

4. New methodology: A Conceptual Model for the relationship between GT and lean production

As it was illustrated earlier, lean production as a management philosophy tries to eliminate waste (muda) and preserves value added processes in order to enhance productivity. In previous studies, researcher focused on lean production and they address the GT synonym of cellular manufacturing, but it seems that the two subjects are not similar. This paper tries to demonstrate how GT concept and its processes can lead to lean production (eliminate waste) and finally to productivity improvement.

For this purpose, a conceptual model is proposed. This model consists of four sections:

i)   GT processes: Constitute groups of products (part family), Coding system and classification, Design conformance, Group production, GT production management, and automated factory system.

ii)   Intermediate variables: Identifying part family, standardize process plan, group scheduling , group tooling set up, improve inventory purchasing requirement, cellular manufacturing, use of CAD-CAM, and use of DNC-CNC. The secondary intermediate variables are power of operation, WIP inventory, material handling, use of jig and fixtures, set up time, required space and quality.

iii)   Lean production wastes: power of operation, inventory, movement, complexity, waiting, unnecessary process and defect.

iv)   Lean production goals: in lean production systems the main aim is to reduce the wastes and costs to achieve higher productivity.

The new methodology is developed based on the reviewed literature and according to the following three impacts of GT on lean production.

i)   The role of part family (grouping, classifying and coding) in lean manufacturing system

Constituting groups of products and GT cells according to similar characteristics of design such as shape, dimension, material and process of production, classifying and coding provides the basis for identifying the products rapidly in systems and this grouping reduces the time of preparing, storing, takt time, lead time and empowers the operation process to decrease over production. Reduction of over production in turn influences waste in lean production and enhances productivity as it is illustrated in Figure 1 (+ and – denote increase and decrease, respectively).

ii)   The role of design conformance in lean manufacturing system

After grouping the products and constituting part families, an important step is reviewing the design and refining the design information and justifying the design. Design conformance includes standardizing process plan, scheduling for groups of products, grouping tools, equipments and improving inventory purchasing requirements. These tasks can decrease time, work in process inventories, material handling and increase the power of operation. Group scheduling can reduce the time of process (lead time and takt time) by grouping tools; and equipments and applying proper jig and fixtures to part family can reduce set up time. These two events can diminish and eliminate extra movements, redundancies or unnecessary process and finally leads to designing jig and fixtures in a way that makes the work easy for labor and avoids complexity in the system, improve inventory purchasing requirements, decrease the size of batch material and required space in system, which in turn reduce further inventories, complexity, extra movement and redundancies as wastes in a lean production systems. However, if the addressed elements could be reduced, the productivity of system will increase. This is illustrated

in Figure 2.

iii) The role of GT management and automated factory in lean manufacturing system

Computers could be utilized in production systems for designing, producing and managing the process which are called computer aided design (CAD) and computer aided manufacturing (CAM) or totally, computer integrated manufacturing (CIM), which is a bank of computerized information that consists of design, production and management information. CIM systems integrate computer technology and manufacturing to gain the organization's goals. Automated factory systems are increasingly using new technologies such as direct numerical control systems, computer numerical control machines that control the production processes by a central computer. These mechanisms can improve quality because of reducing defects and errors and eliminating waste in a lean production system. Figure 3 illustrates the context.

5. Case study

In order to validate the proposed model, a questionnaire is designed to measure the viewpoint of industrial managers about the model (Appendix 1). The questionnaire is designed using the five point Likert scale (1: very low, 5: very high). The first 10 questions measure the relationships between GT process dimensions and intermediate factors of GT and lean production; the next four questions measure the interrelationships of intermediate factors; and finally the remaining nine questions measure the relationships between intermediate factors and lean production wastes. The validity of questionnaire is approved by a number of experts. Its reliability is calculated as 0.857 using Cronbach alpha coefficient, which is satisfactory. The questionnaire was filled by two company's managers, i.e. Gaze Seke Co. and Ghetehkaran Co. GazeSeke is a company that produces Gaz, which is a kind of sweet and has a flow shop operation and six of its managers filled the questionnaires; Ghetehkaran produces automobile pieces and has cellular manufacturing and nine of its managers filled the questionnaires. For analyzing the questionnaires, Mean values of each of the relationships are tested by one sample T-test with a t-value of 3.00. It is interesting to note that the significant value of all of the questions derived as zero, implying that all of the answers have a mean value different from 3 and more than 3 (with respect to the mean values). Table 1 presents the mean values and standard deviations with a confidence level of 95 percent.

6. Discussion

According to the theoretical and empirical results of this research, it is argued that productivity of lean manufacturing systems will be improved if the system reduces its waste and none added value processes. On the other hand, in GT, the philosophy is to divide systems in to subsystems. The conceptual model emphasizes on the fact that in manufacturing systems, GT constitutes groups of products in to part families, classifying and coding the part families, designing the process of similar part families and consequently classifying tools, machines, equipments that lead to designing and preparing the customized jig and fixtures for similar part families. Cellular manufacturing is a kind of layout that may be used in GT systems and as it is stated before, this kind of layout is one of the tools and methods of lean production systems. Recently, the use of computers in production systems has become prevalent and the role of GT in computer aided process planning (CIM) is more recognized, so production managers are interested in using it in CIM. The last step of GT is to developing and extending the use of industrial robots, center machining, CNC, DNC, micro processors and etc. to lead the production systems into integrated computerized systems. On the other hand, the foundation of automated factory systems is on cellular manufacturing and grouping the systems.

The proposed model tries to illustrate the relationship of GT and lean production systems with the fact in mind that such synergy will diminish wastes and redundancies. The model was validated using a questionnaire and the results were presented in Tables 1 and 2. The results imply that all of the mean values are higher than the median (i.e., 3) considering 0.95 level of confidence, denoting a high relationship between the two subjects. The derived values are highlighted in Figure 4.

According to Figure 5, the highest Mean-value is 4.46, which is related to the second question, i.e. coding system and classification on fast identifying if part family. Also, the lowest mean value is 3.46, which is related to question 15, i.e. increasing the power of operation to decrease over production and it declares the fact that managers believe the effect of increasing the power of operation to decrease over production is less than other parts of proposed model. Another statistical analysis is related to variance analysis of two groups of managers in the two companies (Gaze Seke Co. and Ghetehkaran Co.). The results imply that for all of the questions except question 12 and question 15, there is not significant difference between two groups of managers. This fact may refer to their similarity in flow shop production, variety of product types and lot size of their production. As it is addressed, the significant value of question 12, i.e. use of cellular manufacturing to decrease set up time is less

than 0.05, which means there is a difference in the viewpoints of the two groups of respondents. This result may be due to the different processes of two companies; in Gaze Seke Co. the raw material of most types of products are the same and the process of production is similar, but in Ghetehkaran, the process of production is different from one product to another. The significant value of question 15 is also less than 0.05, which highlights a difference in viewpoint of the two groups of respondents. It may be due to limitations of the process of production in Gaze Seke Co. In this company, over production is inevitable, because of the special process of Gaz manufacturing. It is important to note that question 15 has the least mean value. Consequently, the relation of power of operation and over production needs more investigation and research.

However, this research may have some limitations. For instance, as it was mentioned in the literature review, GT is applied for operation systems with multi products and lot size. Therefore, the proposed model should be further examined in other companies with more than one product system, although the model seems to be applicable for multi product systems with lot size. Although the model emphasizes on the application of GT for enhancing productivity, it does not indicate the amount of productivity increase. The model does not offer any approach for measuring the production changes, while applying GT processes. In GT, the philosophy is to divide systems in to subsystems and it refers to all systems of the organization. The proposed model is concentrated on operational systems, but it can be extended into other parts and systems of organization such as financial, administration, research and development, information systems, etc.

7. Conclusions

This paper demonstrated the dimensions of GT and its relationship with lean production goals. In fact, an attempt was made to address how GT can help manufacturing systems to achieve lean production goals. A conceptual model was also proposed for the relationship between the two subjects. In order to examine the links of the model, a questionnaire was designed and filled by managers of two companies. The two companies were Gaze Seke and Ghetehkaran. Data analysis approved the high relationship between the dimensions of the proposed model. The variance analysis also addressed no difference between the two groups of respondents except for two questions.

Although researchers focused on lean production and they address the GT synonym of cellular manufacturing, it seems that the two subjects are not similar. The paper emphasized on GT and its processes to achieve lean production and productivity improvement. GT has many effects on production wastes; particularly it can improve set up time, quality, inventory management, jig and fixtures in order to decrease waiting time, defects, inventory and over production.

This paper focused on the two subjects of GT and lean production and their linkage to enhance productivity but it didn't indicate that how much GT can improve the productivity and lean production goals. It is important to note that the proposed model does not offer any measurement approach for measuring the effects of variables on productivity. The proposed model is applied for manufacturing systems and particularly for mass production. Since the model is applied for manufacturing systems, it is highly recommended to be customized and implemented in other organizations such as service companies. Identifying indicators for measuring the amount of increase in productivity is recommended for future studies. Also, the relationship of power of operation and over production which was indicated in the model needs more investigation.

References

Al-Salti, M. & Statham, A. (1994). The Application of Group Technology Concept for Implementing SPC in Small Batch Manufacture. *International Journal of Quality & Reliability Management*, 11(4), 64-76.

Andersen Consulting (1993). *The Lean Enterprise Benchmarking Project Report*. London: Andersen Consulting.

Askin, R. & Standridge, C. (1993). *Modeling and analysis of manufacturing systems*. New York, NY: John Wiley.

Black, J. (2007). Design rules for implementing the Toyota production system. *International Journal of Production Research*, 45(16), 3639-3664.

Burbidge, J. (1975). *Production flow analysis for planning group technology*. New York, NY: John Wiley & Sons.

Cheng, C., Goh, C. & Lee, A. (1995). A two stage procedure for designing a group technology system. *International Journal of Operations & Production Management*. 15(6), 41-50.

Childerhouse, D. & Towill, R. (2002). Analysis of the factors affecting real world value steam performance. *International Journal of Production Research*, 40(15), 3499-3518.

Dettmer, W. (2008). *Beyond lean manufacturing: combing lean and the theory of constrain for higher performance*. USA: Port Angeles.

Flanders, R. (1925). *Design manufacture and production control of standard machine*. New York, NY: ASME transactions.

Forza, C. (1996). Work organization in lean production and traditional plants What are the differences? *International Journal of Operations & Production Management*, 16(2), 42-62.

Fullerton, R. & Wempe, W. (2009). lean manufacturing nonfinancial performance. *International Journal of Operations & Production Management*. 29(3), 214-240.

Ham, I., Hitomi, K. & Yoshida, T. (1985). *Group technology application to production management*. Nijhoff, EN: kluwer.

Hayes, R.H. & Pisano, G.P. (1994). "Beyond world-class – the new manufacturing strategy.", Harvard Business Review, Vol.72, No.1, pp. 77-86.

Hines, P., Holweg, M. & Rich, N. (2004). Learning to evolve: a review of contemporary lean thinking. *International Journal of Operations & Production Management*, 24(10), 994-1011.

Hubbard, D.T., Taylor, S.G. & Bolander, S.F. (1992). Process flow scheduling in a high volume repetitive manufacturing environment. *Production & Inventory Management Journal*, 33(4), 21-26.

Karlsson, C. & Alsthrom, P. (1996). Assessing changes towards lean production. *International Journal of Production & Operations Management*, 16(2), 24-41.

Kusiak, A. (1990). *Intelligent Manufacturing Systems*. Englewood Cliffs, NJ: Prentice-Hall.

Lewis, M. (2000). Lean production and sustainable competitive advantage. *International Journal of Operations & Production Management*, 20(8), 959-978.

Miller, T. (1991). Integrating current end-item inventory conditions into optimization-based long-run aggregate production and distribution planning. *Production & Inventory Management Journal*, 32(4), 74-80.

Monden, Y. (1998). *Toyota production system: An integrated approach to just in time*. Norcross, GA: Engineering and Management Press.

Nomden, G. & Zee, D. (2008). Virtual cellular manufacturing: Configuring routing flexibility. *International journal of Production Economics*, 112(1), 439–451.

Ohno, T. (1978). *Toyota Production System*. Cambridge: Productivity Press.

Oliff, M.D. & Burch, E.E. (1985). Multiproduct production scheduling at Owens Corning Fiberglass. *Interfaces*, 15(5), 25-34.

Oliver, N., Delbridge, R. & Lowe, J. (1996). The European auto components industry: manufacturing performance and practice. *International Journal of Production & Operations Management*. 16(11), 85-97.

Pettersen, J. (2009). Defining lean production: some conceptual and practical issues. *The TQM Journal*, 21(2), 127-142.

Prasad, T. & Bhadury, B. (1993). Productivity improvement of a machining center. *Production & Inventory Management Journal*, 34(3), 20-35.

Riezebos, J., Klingenberg, W. & Hicks, C. (2009). Lean Production and information technology: Connection or contradiction? *Computers in Industry*, 60, 237–247.

Santos, N. & Araujo, L. (2003). Computational system for Group Technology-PFA case study. *Integrated Manufacturing Systems*, 14(2), 138-152.

Seth, D. & Gupta, V. (2005). Application of value stream mapping for lean operation: an Indian case study. *Production Planning & Control*, 16(1), 44-59.

Shafer, S.M. & Ernst, R. (1993). Applying group technology principles to warehousing operations. *Journal of Purchasing & Materials Management*, Spring, 39-42.

Shahin, A. & Alinavaz, M. (2008). Integrative approaches and frameworks of lean Six Sigma: a literature perspective. *International Journal of Process Management & Benchmarking*, 2(4), 323-337.

Shewchuk, J. (2007). Worker allocation in lean u-shaped production line. *International Journal of Production Research*, 1(1), 1-18.

Shingo, S. (1989). *A study of the Toyota production system from an industrial engineering view point*. Cambridge MA: Productivity Press.

Sim, K. & Rogers, J. (2009). Implementing lean production systems: barriers to change. *Management Research News*, 32(1), 37-49.

Snead, C. (1989). *Group Technology: foundation for competitive manufacturing*. New York, NY: van Nostrand Reinhold.

Spithoven, A. (2001). Lean production and disability. *International Journal of Social Economics*, 28(9), 725-741.

Towill, D. (1997). Forridge-principles of good practices in material flow. *Production Material & Control*, 8(7), 622-632.

Wemmer, L. & Hyer, N. (1998). Cellular manufacturing practice. *Manufacturing Engineering*, 102(3), 79-82.

Williams, K., Haslam, C., Williams, J., Cutler, T., Adcroft, A. & Johal, S. (1992). Against lean production. *Economy & Society*, 21(3), 321-354.

Womack, J., Jones, D. & Roos, D. (1990). *The Machine that Changed the World: The Triumph of Lean Production*. New York, NY: Rawson Associates.

Womack, J. & Jones, D. (1996). *Lean Thinking*. New York, NY: Simon and Schuster.

Zhu, Z., Cernich, W., Meredith, P. & Lanier, P. (1997). Scheduling customized bag production: an application of the Group Technology concept. *Industrial Management & Data Systems*, 97(1), 31–36.

Table 1. Results of one sample t-test

Question	Mean	Std Deviation	Question	Mean	Std Deviation
Constituting part family on fast identifying of part family	4.0667	0.4577	Use of CAD-CAM manufacturing on increasing quality	4.2000	0.8619
Coding system and classification on fast identifying of part family	4.4667	0.5164	Use of CNC-DNC Robot on increasing quality	4.0667	0.8837
Standardizing the process on decreasing WIP inventories	4.0000	0.8452	Increasing the power of operation on decreasing over production	3.4667	0.8338
Group tooling set up on increasing use of jig and fixtures	3.7333	0.7037	Decreasing WIP inventories on decreasing inventories	3.8000	0.8619
Group tooling set up on decreasing set up time	4.2000	0.6761	Material handling on decreasing inventories	4.2667	0.7037
Improving inventories on decreasing required space	4.4667	0.8338	Reducing required space on decreasing inventories	3.6000	0.8281
Improving inventories on better material handling	4.4000	0.6325	Increasing the use of Jig and Fixtures on reducing movement	3.9333	0.5936
Group Technology production management on the use of cellular manufacturing	3.8000	0.6761	Increasing the use of Jig and Fixtures on reducing complexity in system	3.7333	0.7988
Group Technology production management on the use of CAD-CAM manufacturing	3.6667	0.9759	Increasing the use of Jig and Fixtures on reducing unnecessary process	4.0000	0.6647
Automated factory system on increasing the use of CNC-DNC, Robot	4.0714	0.6157	Reducing set up time on reducing waiting time	3.7333	0.8837
Fast identifying of part family on increasing the power of operation	4.1333	0.7432	Increasing quality on reducing defects	4.3571	0.9288
Use of cellular manufacturing on decreasing set up time	3.6667	0.4880			

Confidence level = 95 percent

Table 2. Results of the two independent sample test for comparing the responses of the two companies

Question	Asymp. Sig	Question	Asymp. Sig
Constituting part family on fast identifying of part family	0.060	Use of CAD-CAM manufacturing on increasing quality	0.479
Coding system and classification on fast identifying of part family	0.838	Use of CNC-DNC Robot on increasing quality	0.183
Standardizing the process on decreasing WIP inventories	0.533	Increasing the power of operation on decreasing over production	0.005
Group tooling set up on increasing use of jig and fixtures	0.478	Decreasing WIP inventories on decreasing inventories	0.488
Group tooling set up on decreasing set up time	0.601	Material handling on decreasing inventories	0.071
Improving inventories on decreasing required space	0.204	Reducing required space on decreasing inventories	0.640
Improving inventories on better material handling	0.188	Increasing the use of Jig and Fixtures on reducing movement	0.230
Group Technology production management on the use of cellular manufacturing	0.069	Increasing the use of Jig and Fixtures on reducing complexity in system	0.799
Group Technology production management on the use of CAD-CAM manufacturing	0.666	Increasing the use of Jig and Fixtures on reducing unnecessary process	0.421
Automated factory system on increasing the use of CNC-DNC, Robot	0.172	Reducing set up time on reducing waiting time	0.319
Fast identifying of part family on increasing the power of operation	0.127	Increasing quality on reducing defects	0.840
Use of cellular manufacturing on decreasing set up time	0.031		

Confidence level = 95 percent
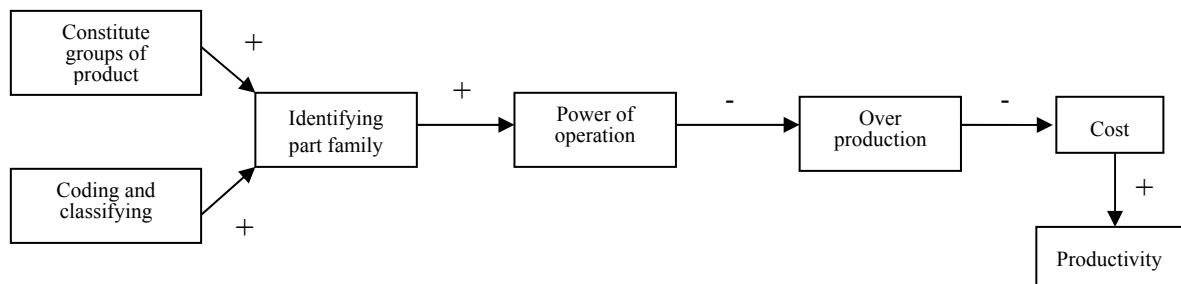
Figure 1. The impact of part family (grouping, classifying and coding) on lean manufacturing system -Extracted and modified from Ham et al. (1985)

Figure 2. The impact of design conformance on lean manufacturing system-Extracted and modified from Ham et al. (1985)
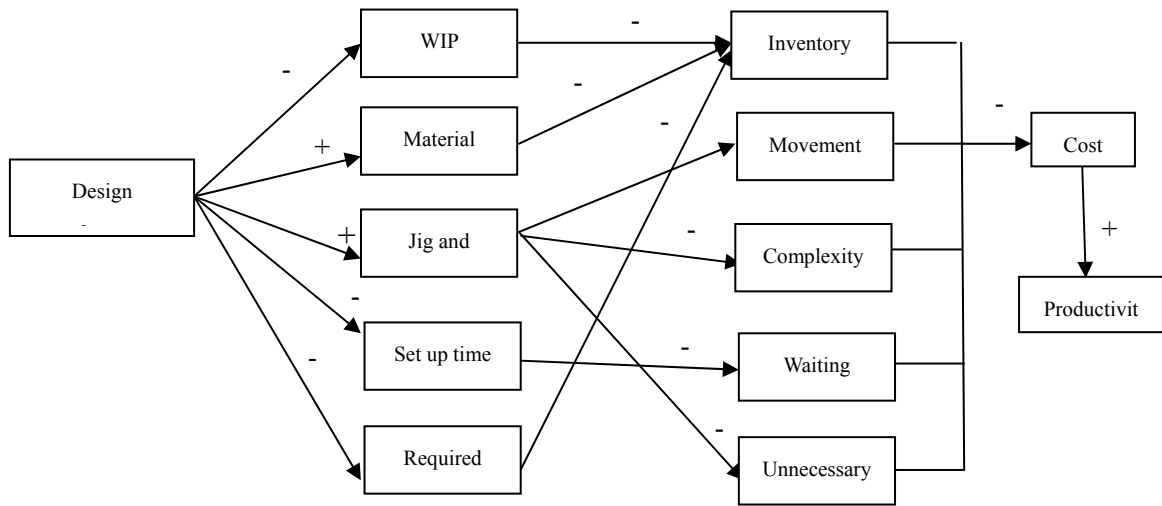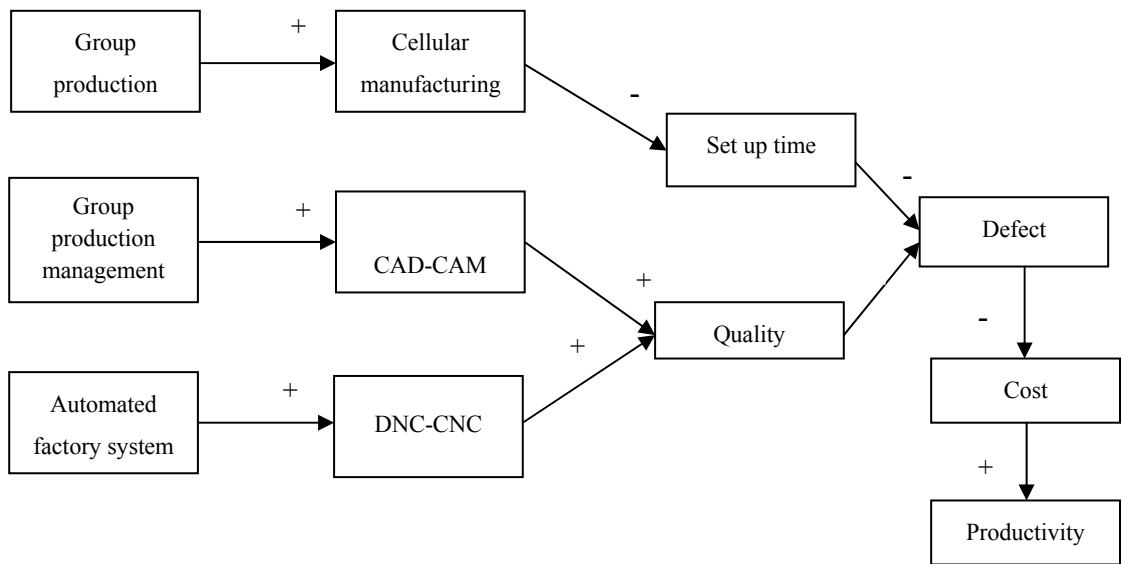

Figure 3. The impact of GT management and automated factory on lean manufacturing system - Extracted and modified from Ham et al. (1985)
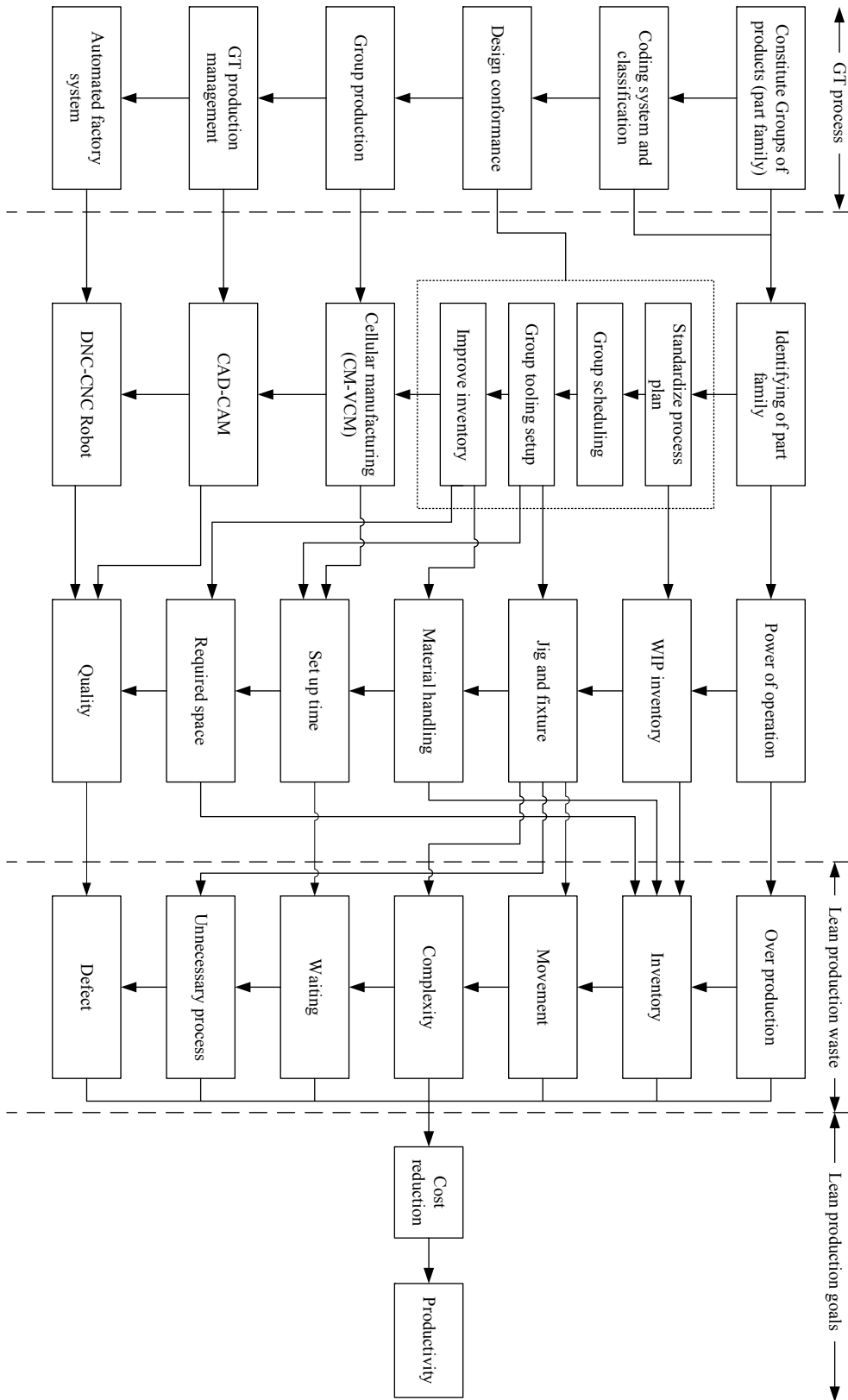
Figure 4. Proposed conceptual model of the relationship between GT and lean production
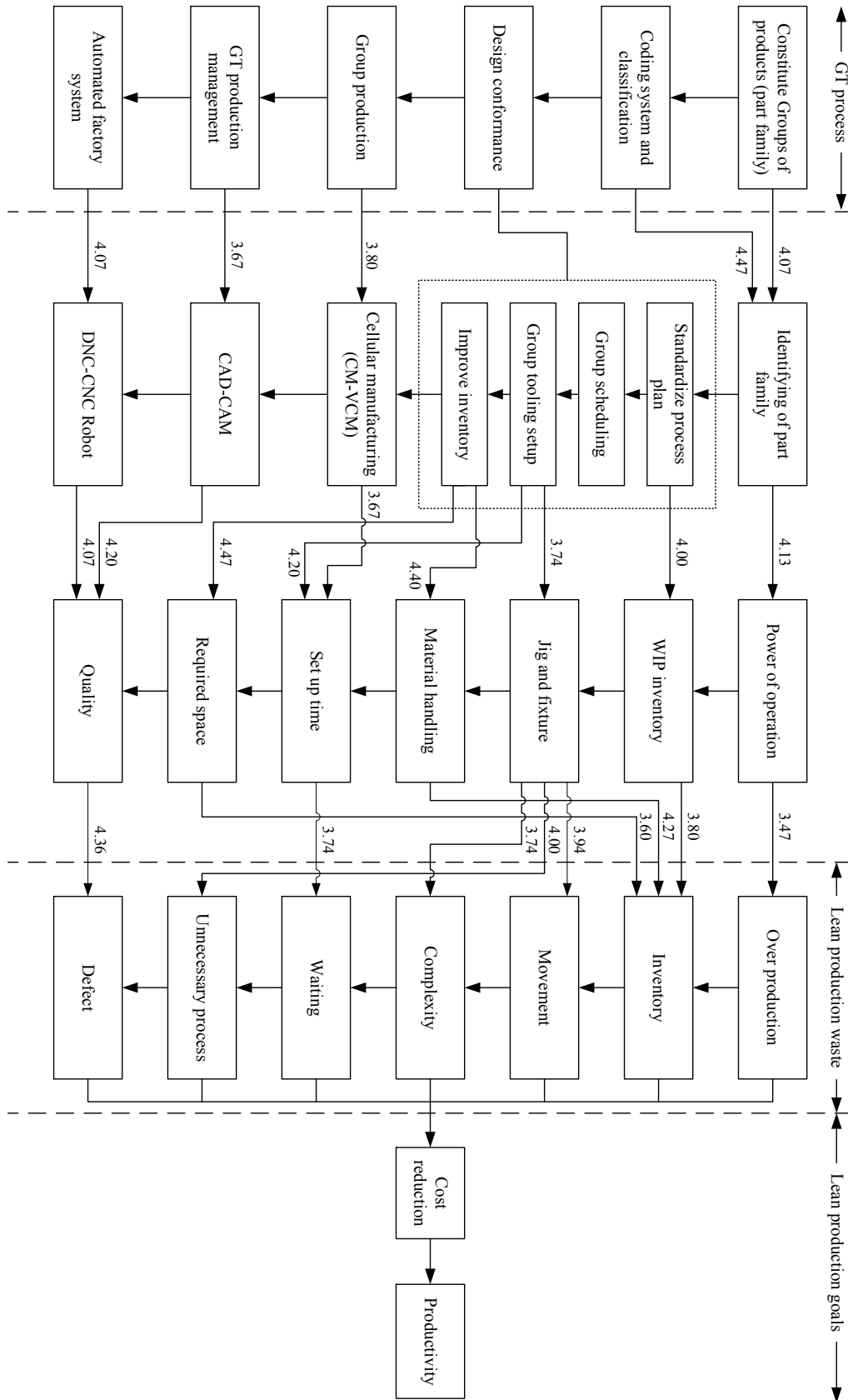
Figure 5. Mean-values of the relationships between the elements of the proposed model

Appendix 1. Questionnaire

The aim of this investigation is to study the effects of Group Technology on lean production. Please mark the choices which are close to your idea. Thank you for your participation.

Demographic characteristics:

Gender: male ◯   female ◯

Age: 20-30 ◯   30-40 ◯   40 or over ◯

Degree: BS ◯   MS ◯   Ph.D. ◯

Years of experience since employment:

Under 10 years ◯   10 to20 ◯   20to30 ◯

No	Question	very high	high	medium	low	very low
1	Constituting part family on fast identifying of part family					
2	Coding system and classification on fast identifying of part family					
3	Standardizing the process on decreasing WIP inventories					
4	Group tooling set up on increasing use of jig and fixtures					
5	Group tooling set up on decreasing set up time					
6	Improving inventories on decreasing required space					
7	Improving inventories on better material handling					
8	Group production on the use of cellular manufacturing					
9	Group Technology production management on the use of CAD-CAM manufacturing					
10	Automated factory system on increasing the use of CNC-DNC, Robot					
11	Fast identifying of part family on increasing the power of operation					
12	Use of cellular manufacturing on decreasing set up time					
13	Use of CAD-CAM manufacturing on increasing quality					
14	Use of CNC-DNC Robot on increasing quality					
15	Increasing the power of operation on decreasing over production					
16	Decreasing WIP inventories on decreasing inventories					
17	Material handling on decreasing inventories					
18	Reducing required space on decreasing inventories					
19	Increasing the use of Jig and Fixtures on reducing movement					
20	Increasing the use of Jig and Fixtures on reducing complexity in system					
21	Increasing the use of Jig and Fixtures on reducing unnecessary process					
22	Reducing set up time on reducing waiting time					
23	Increasing quality on reducing defects					

Financial Support System and Strategy of SMEs in the Incubation Based on Business Life Cycle

Yanjuan Cui

School of Finance, Dongbei University of Finance and Economics

School of Management, Dalian Polytechnic University

1 Qing Gong Yuan, Gan Jing Zi, Dalian 116034, China

Tel: 86-411-8632-3622 E-mail: tsuiyanjuan@163.com

Ling Zha

City College, Southwest University of Science and Technology

11 San Xing Road, You Xian, Mianyang 621000, China

Tel: 86-816-628-5106

Fenghai Zhang

School of Management, Dalian Polytechnic University

1 Qing Gong Yuan, Gan Jing Zi, Dalian 116034, China

Tel: 86-411-8632-3325

Abstract

SMEs in the incubation are the main innovation of a nation, and the new product is not without SMEs technology innovation. It is not only the theoretical but also practical significance that SMEs in the Incubation develop strongly for economic growth and technology innovation, but as the normal SMEs, they also face the financial support difficulty or more others. This paper analyses the financial demand characters of SMEs in the incubation based on the theory of business life cycle. The conclusion is that different development phases need different financial support because SMEs in the incubation face different financial cycles. The financial support system is set up to fit the cycle needs of SMEs in the incubation, and then the suggestions are illustrated. The results can be the reference for the problems of financial support for SMEs in the incubation.

Keywords: SMEs in the incubation, Financial support system, Strategy, Business life cycle

1. Introduction

Business incubator is the important platform for SMEs developments and technology innovation. It is physical space for the business enterprise, sharing platform for business support services and vector for supporting enterprises starting and developing, so it is of great significance for employment, local economic growth and foreign investment (Deborah M. Markley & Kevin T. McNamara, 1995). Business incubator is the service centers providing with physical space and infrastructure and a series of service support to reduce start-up costs and risk, improve the success rate of entrepreneurship and promote scientific and technological achievements, so the SMEs can develop and growth fast. Business incubator services as intermediary agent to strive for government finance besides supporting business itself. And they also strive for low interest loan, stock and project investment from bank, venture capital institution guaranteeing by incubators' credit and capital. SMEs in the incubation are the relative term to incubator. So-called SMEs in the incubation are those in the start-up stage and developed relying on certain environment. Those enterprises have so great financial gap that their development are restrained because of their high technology, less capital and greater risk. So the incubators are the important platform for SMEs in the incubation development.

The incubator for SMEs developed is one of venture capital, whose development makes up for the shortage of financial support. Some surveys showed that in North America about seventy five percent of tech business incubator had helped the clients obtain commercial bank loans or professional non-commercial bank loans and loan guarantees, and about sixty six percent incubator plan could help clients connecting with angel funds or

venture capital investors, and thirty three percent could provide inner investment funds. And now in China, according to statistics of the Ministry of Science and Technology, there are more than ninety percent of small business entrepreneurs in the over 670 incubators and 60-university science park, and there are more than more than 54 000 businesses in the incubation. As one of venture capital incubator can ease the financial shortage of SMEs in incubators, but financial difficulty is still the great problem for them. SMEs in the incubation are lack of endogenous financing, and the financial support of commercial bank, investment and credit guarantee services are limited, so the main disturbing factor of SMEs incubation is the imperfect financial support system, especially during the global finance crisis. While at the mean time, SMEs are indispensable force of technological innovation and economy development. Therefore, it is very significant to discuss financial support for SMEs in the incubation for China.

This paper overviews the related researches and literatures for studying the SMEs in the incubation, then analyzes the different finance demand based on the SMEs lifecycle, at last proposed financial support measures for SMEs are proposed. It hopes that this study can be helped for SMEs finance difficulties.

2. Literature overview

The theory basis for SMEs financial support is the capital structure theory and SMEs financial theory. The earlier study was MM theory, which suggested that corporate investment is irrelevant with financing policy and corporate financing structure does not affect the market value (Franco Modigliani & Merton Miller, 1958). MM theory was revised that tax shield benefits and personal income tax could be offset so capital structure does not affect the value of the company under equilibrium condition (Miller, 1977). Later the trade-off theory relaxed some assumption that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits (Robichek & Mayer, 1966). Agency cost was given that the agency costs should be borne by the shareholders with the existence of external equity, and because of different effects of operators, shareholders and creditors, only the modest debt increasing in capital structure would increase the shareholder value (Jensen & Meckling, 1976). The pecking order theory states that with asymmetric information, companies will use internal funds first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued (Myers & Majluf, 1984). Corporate finance cycle hypothesis that enterprises can be divided into creation, growth and recession stages, which have the different financing sources such as own fund in creation stage, and credit, loans, leases, bonds in growth stage and so on (Weston & Brigham, 1978).

SMEs financial theory is mainly based on the theory of credit ration and relationship banking. Credit rations theory refers that with asymmetric information the bank will imply the rate rationing system for lenders to avoid moral hazard and adverse selection when facing exceed demands for loans, so that SMEs will be difficult to access the appropriate finance (Stiglitz & Weiss, 1981). Theory of relationship banking states that the large financial institutions typically provides services for large enterprises, while Medium and small financial institutions always establish cooperation relationship with SMEs easily for their advantages in information, therefore it will help solving the problems of finance difficulty resulted from asymmetric information of financial institution and SMEs (Berger, 1998). In China, the main research of SMEs finance started slower. Some research suggests that the fundamental way for removing the private economic and financial difficulties of SMEs is to create the external environment of endogenous growth financial system (ZHANG Jie, 2000). Some states that development and improvement of small and medium financial institutions is the important thing for China SMEs (LIN Yifu, 2001). While ZHONG Pengrong (2002), PENG Lei (2003) and BA Shusong (2006) all developed the arguments of different ways for SMEs finance.

All those researches have provided the theory and practice base for SMEs in incubators finance, and given the reference for improve the development of SMEs.

3. Financial demand for SMEs in the incubation on the life cycle

SMEs in the incubation are different with those out the incubation in less registered capital, larger ratio of technology staffs and own capital. So that it is very easy for SMEs in the incubation to take out asymmetric information, difficulty to manage and finance. Based on finance life cycle, the lifecycle of SMEs in the incubation can be classified as seed period, infant period, growth period, and maturity period and after the incubation period, such as the top of Figure 1 shown. Demands for finance support system are differed for the differences on the scale, capital demand and operation of each lifecycle period.

Seed period refers to that early into the incubation. SMEs in the incubation hold the project developed. Their invisible capital and risk are larger, and even the yield is negative, so that the bank credit and capital market funding are almost not be accessed. The main resources are from own capital, loans and deposits of family and friends. While if the project has great prospects, entrepreneurs can get government seeds fund, incubating fund

and innovation fund etc on patents. Generally, SMEs during this period mainly get finance support from own capital and venture capital than others.

Infant period is that after seed. At this period, the own capital can't meet the enterprise development, so SMEs in the incubation during this period have to seek for the external financing. However, there is still higher risk and lower yield, so that business angels but bank load is employed. Business angels are very important here,that business angels provide not only the fund but also the service of management consulting, technical supporting and information network.

During the growth period SMEs in the incubations have developed stably. They need a great of capital to enlarge the production, improve the quality and brand, so that they must to seek for the external finance such as venture capital, as limited partnership limiting the investors' liability to decrease the risk of asymmetric information.

SMEs in the incubations during the maturity period have increasing yield and risk reduction. And with much more mortgage assets, SMEs can get finance of initial public offering (IPO) including debt and bank finance. IPO can reduce the finance cost greater than others. Another method is to get the bank loan because at this period SMEs have has the higher yields.

After the incubating period, there are little protections for SMEs have graduated from the incubations. So that the institutional investors and banks have been the main capital sources. And SMEs will incubate successfully only if the endogenous and external financing are combined effectively.

4. Strategies and support system for SMEs in the incubation

Based on the different financial demand on the life cycle, the financial support system for SMEs in the incubation can be established. As the bottom of Figure.1 shown, it is make the government polices as guidance, incubation as the platform, capital market and banks loan etc. as multi-channel capital supply and develop the institution's functions to improve the finance support system for SMEs in the incubation.

4.1 Increase the government policy support range

The government policy and service is the favor back force and make good developed environment for SMEs in the incubation, such as the preferential tax, interest loans and discount etc. An effective way is to set up special funds for those fitting national industry policy and innovation to provide loan assistance and security, e.g. Science and Technology (Development) Fund, Guarantee Fund, Mutual funds and special sector fund and so on.

In addition, the government, joint with local research institutions such as universities, commerce chamber etc., can provide the service in legal advice, policy recommendations, marketing management, finance and training etc in order to improve the developments of SMEs in the incubation.

4.2 Develop the incubation for SMEs

Incubation is the incubation platform for SMEs. However, they differ form each other for the difference of SMEs and actual developments in various regions. Therefore, the development of incubations is based on the local circumstances, e.g. University Park Incubation can be established around the university and so on. It is one of best ways for solving the financial problems of SMEs in the incubation to plan and guide the incubator playing the role of intermediary and platform to strive for low interest loan, stock investment and project investment from bank and venture capital institutions.

4.3 Play the role of capital market effectively

Capital market has been the direct financing channel. Multiple capital markets, especially the growth enterprise market (GEM) and SME board market, can satisfy the financial demand of SMEs in the incubation. At the meanwhile, the bond market can be used for the SMEs in the incubation with sound capital structure, adequate financial information disclosure and good reputation. Then the financial gaps can be covered by the capital effectively.

4.4 Develop financial institution function

Financing channel mainly with commercial bank, medium and small banks and other can satisfy the different demand of SMEs in the incubation. The following can be suggested.

Firstly, State-owned commercial banks are very important. They have the advantages of wider network, more capital and talent etc so they can innovate multiple finance products, strengthen the service consciousness and try establishing special service window for SMEs to provide special service for SMEs in the incubation. If possible, the state-owned commercial banks can cooperate with enterprise to set up venture capital and professional property exchange center to service as the bridge of the SMEs in the incubation with the large enterprises.

Secondly, local small and medium financial institutions are important too. For instance, free interest, low-interest or even discount loans can be offered to those needs supporting in deed. And the information can be grasped to solve the financial gap of SMEs in the incubation during the different lifecycle period,.

Thirdly, Private capital could be encouraged into the financial support system. Private capital plays an important role in the different lifecycle period, especially during the seed period and infant period. Compared with bank finance, private capital can reduce the risk from asymmetric information. So the government can guide the private capital connecting with the SMEs in the incubation and make it become the important capital source for SMEs incubating.

Fourthly, professional financial leasing sector can be constructed, and then SMEs in the incubation can obtain the necessary equipment with rental. Financial leasing is the practice method for solving the financial gap of SMEs in the incubation.

Lastly, new financial service such as trade credit, logistics finance and insurance finance etc, can be used to meet the needs of SMEs in the incubation during the different stages. Trade credit is the cash or commodity credit provided between importers and exporters, or provided by bank, government or international finance institution to traders. This financial support in international trade not only solves the financial difficulty but also provides related services of notes or credit guarantee through by bank or other finance institution. Logistics finance, which organizes the money flow in logistic area through all kinds of financial products, can be used as an effective complement during different stages, and avoid the risk of asymmetric information with the characteristics of logistics companies charging the businesses goods. Furthermore, insurance finance can be tried to resolve financing techniques risk, which can provide insurance with services mortgage and guarantee.

4.5 Perfect legal and credit Guarantee

SMEs in the incubation are different from common ones in absence of effective competition. So the related laws, regulations and business environment should be improved to safeguard the legitimate rights and interests of SMEs in the incubation. Local government should draft policy documents to encourage and protect their developments.

With the development and graduation after incubating maturity, the bank loans become the main finance method. However, there is absent of appropriate security and collateral. The incubation can give only a little help. So SMEs information website, credit database and credit guarantee institutions can be used to make that cooperate coordinately with financial institutions.

4.6 Enlarge the service range by industry association

Industry association can help to establish enterprise information database, so the enterprises can know about information of market and policy in time, grasp the common problems of industry development, and promote to study with each other. Then the SMEs in the incubation can develop quickly and strengthen their own construction to obtain all channels of finance.

5. Conclusion

The incubator for SMEs, as one of venture capital in fact, has make up the finance shortage. Incubation together with bank, capital market, institution security and government has established the integrated finance support system for SMEs in the incubation.

References

Alexander A. Robichek, & Stewart C. Myers. (1966). Problems in the theory of optimal capital structure. *Journal of Financial and Quantitative Analysis*, 1, 1-35.

Berger, A. N., A. Saunders, J.M. Scalise, & G. F. Udell. (1998), The effects of bank mergers and acquisitions on small business lending. *Journal of Financial Economics,* 50, 187-229.

Cardullo, Mario W. (1999). *Technological entrepreneurism: enterprise formation, financing and growth*, England: Research Studies Press Ltd, pp56.

Deborah M. Markley, & Kevin T. McNamara. (1995). Economic and fiscal impacts of a business incubator. *Economic Development Quarterly*, 9, 273-278.

Jensen, M. & W. R. Meckling. (1976). Theory of the firm, managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 6, 305-360.

J. F. Weston & E F. Brigham (1978). *Managerial finance*. (6th ed). The Dryden Press, pp 45-60-708.

LIN, Yifu & LI, Yongjun. (2001). Finance of Medium and Small-sized Enterprises and the Development of Medium and Small-sized Financial Institutions. *Economic Research Journal*, 1, 10-18,53

Merton H. Miller. (1977). Debt and taxes. *Journal of Finance*, 32, 261-275

Modigliani, F., & M. Miller (1958). The cost of capital, corporate finance, and the theory of investment. *The American Economic Review*, 48, 261-297

Myers, S., & N. Majluf. (1984). corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, 187-221

Stiglitz, J. & A. Weiss (1981). Credit rationing in markets with incomplete information. *American Economic Review*, 71, 393-410

ZHANG, Jie. (2000). The financing dilemma and pecking order of the people-run economy. *Economic Research Journal*, 4, 3-10
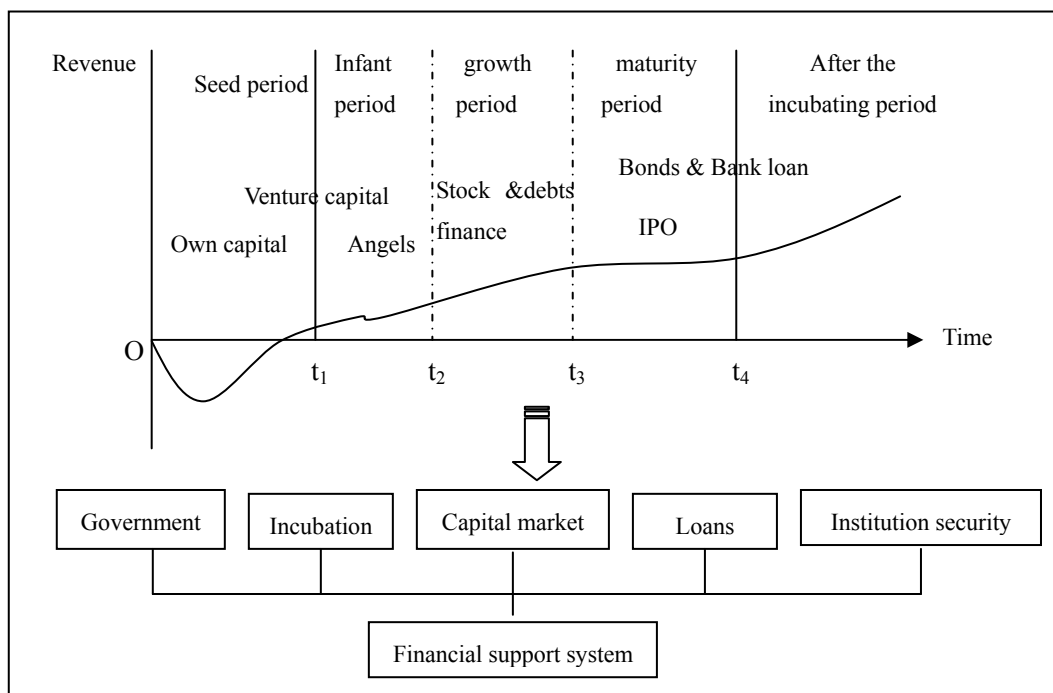
Figure 1. Financial Demand Characteristics on the Life Cycle and Support System for SMEs in the Incubation

An MRP Model for Supply Chains

Lutfu Sagbanşua, PhD

Assistant Professor of Management, School of Economics and Administrative Sciences

Turgut Ozal University, 158.st Etlik, Kecioren/Ankara

E-mail: lsagbansua@turgutozal.edu.tr

M. Nurettin Alabay, PhD

Assistant Professor of Management, School of Economics and Administrative Sciences

Turgut Ozal University, 158.st Etlik, Kecioren/Ankara

E-mail:nalabay@gmail.com

Abstract

The information technologies pose as one of the biggest enablers of the modern supply chain management (SCM). This study focuses on one of the vital use of information technologies in SCM context, namely Materials Requirement Planning (MRP). Types and ways of information technologies related to supply chain management is analyzed. MRP is discussed along with a model to provide an example. Information about the developed software for the model is also provided. MRP and its value in inventory management systems are stated as a basis for the future research which will improve the current MRP model introduced along with the experimental results as a basis for comparison.

Keywords: Supply Chain Management, Information Technologies, MRP

1. Introduction

Information and communication technologies (ICT) are one of the most important enablers of effective supply chain management. A great deal of interest in supply chain management stems from the availability of information and the methods to analyze this information to reach meaningful results. New opportunities exist as electronic business gain importance, and especially the widespread use of internet is increasing the interest for the information technologies (Simchi-Levi etal., 2000).

Supply chain management consists of many functional areas in companies and it is affected by the communications of these groups. Thus, this paper aims to discuss the information technology structures of companies, supply chain applications and intra-company communications.

Information technologies are a source of competitive power for many companies. Especially for service industries such as big retailers, transportation companies, and airway companies where they have been started to widely used, information technologies have earned a vital role.

The time and opportunities to reach information is very important for supply chain management which aims to increase service level and decrease the costs and lead times. Along with this, many companies are offering information technologies based services to their customers in order to gain competitive edge and sustain long term relationships with them. Such a service offered by a single company in an industry makes it an obligation for the rest of the companies competing in the same industry. According to the research conducted by Subramani, relationship-specific intangible investments play a mediating role linking SCM systems use to benefits. Evidence that patterns of information technology use are significant determinants of relationship-specific investments in business processes and domain expertise provides a finer-grained explanation of the logic of IT-enabled electronic integration (Subramani, 2004).

The technologies used in different departments in the company differentiate from each other by the time. For successful supply chains it is vital to integrate and standardize these technologies.

2. Material Requirement Planning (MRP)

The raw material, parts and other components of the products are named as dependent demand. In order to manage this kind of demand, there is a need for a different method rather than the classical inventory management techniques.

The difference in the management of inventories stems from the difference in the structure of demand for those products. The demand for products such as raw materials and parts that are used in the production of final product is called dependent demand. For instance, since the demand for parts and materials required for the production of automobile depends on the amount of demand for automobile, it is classified as dependent demand. On the other hand, demand for automobile is an independent demand as it is not a component of another product.

Dependent demand exhibits a discontinuous nature as opposed to the continuous nature of independent demand. That is because certain components are used in large lots in certain periods of the production line and not used at all in other periods.

For instance, the same company might be producing different products in different periods of the year. Some parts of these products might be common in every product. Thus, the company always has to keep such components in the inventory. However, some parts are only required for certain products. So they will be needed in periods where these products will be produced, resulting in discontinuous demand for these types of parts.

As a result of that characteristic, the products with independent demand should be stocked continuously, while the products with dependent demand should only be stocked just before the time they will be used in the production process. The fact that the dependent demand products are known in advance, the need for safety stock is eliminated or reduced to a minimum.

MRP is a computer-based system designed to organize the timing and ordering of the dependent demand products. The demand for the raw material and components of the final product are calculated by using the demand for the final product and it is determined how much and in what quantity to order from these components and raw material, considering the production and lead times and counting back from the delivery time of the product. Thus, the demand for the final product is used to calculate the demand for the components in lower levels. This process is divided into planning periods and the production and assembly functions are organized, resulting in lower inventory levels along with ensuring the timely deliveries of the final product.

From this perspective, MRP is a philosophy as much as it is a technique and a time management as much as it is an inventory control method.

Ordering and timing processes were facing two difficulties in the past. The first one was the difficulty of production scheduling, tracing many parts and components, and dealing with the changes in the orders. The second difficulty was the lack of distinction between the dependent and independent demand. The techniques designed for the independent demand was being used for the dependent demand as well, resulting in high levels of inventories. Consequently, inventory planning and production scheduling were major problems for the manufacturers.

The manufacturers in 1970s have started to realize the need for a distinction between these two types of demands and different approaches to utilize for each of them. Many companies have left the record keeping and component requirements to the computers using MRP system.

MRP starts with a schedule for the final product, and this schedule is transformed into another schedule ensuring the timely delivery of the components and raw material required in the production of the final product. Thus, MRP is designed to answer three questions: What is needed? When is it needed? How much is it needed?

The inputs for the MRP system is a bill of material, a main schedule showing when and how much of the final product is needed, and an inventory records file showing how much inventory is at hand or how much is ordered. The planner determines the requirements for each planning period, using these inputs.

The outputs of the process are the planned order schedules, order confirmations, changes, performance control reports, planning reports, and exception reports.

In a discrete parts manufacturing environment, material requirement planning (MRP) is carried out without considering the manufacturing resource capacity. As a result, during implementation, adjustments in planned orders may become necessary. Pandey etal., presents a finite capacity material requirements planning algorithm (FCMRP) to obtain capacity-based production plans (Pandey etal., 2000).

Theoretically, there is no need for safety stock in the inventory systems based on the dependent demand, which is one of the main benefits of the MRP approach. After the main schedule is prepared, it is assumed that there is no need for safety stock when the managers can see the amount of usage. However, exceptions may occur in practice. For instance, variable waste ratios can cause disruptions in the operations. Moreover, the higher production times than what is expected and late deliveries of the components can also cause problems in the production process. It can be argued that using safety stock would eliminate the disruptions in the operations but it becomes more complex in multi-level production systems, as insufficient amount of any component will disrupt the final product

production. Also, using safety stock would eliminate one of the biggest advantages of the MRP; operating without safety stock.

MRP systems deal with such problems using different methods. The goal of the managers is to find out the operations with variability and determine the extent of this variability. In situations with variable lead times, concept of safety lead time is used rather than safety stock. This concept requires to order the components to receive before the time they will be needed; thus, eliminating the possibility of waiting for these components, or at least minimizing it. If there is variability in the amounts of components, a certain amount of safety stock can be held but the managers must carefully calculate and analyze the cost of such a safety stock. Usually, the managers choose to hold safety stock for the situations where the demand for the final product varies, and the safety lead time is not possible.

(Wacker, 1985) presents a theoretical MRP model which includes both demand and supply uncertainties from quantity and timing variations. The model suggests empirical methodologies to estimate the variances of final outputs and components for estimates of safety stock requirements to reduce uncertainty. Wacker suggests a methodology for safety stock estimates to alleviate demand uncertainty for trade-to-stock organizations and made-to-order organizations. He also suggests methodologies to estimate safety stock for the production systems to alleviate supply uncertainty (Wacker, 1985).

The managers must be sure of the lead times especially when the components are expected to reach the production point just before they will be used. The early component entries would be increasing the current inventory levels, while the late entries would delay the other operations, resulting in important losses and extra costs. Considering this fact, the managers choose to show the lead times longer than they are, accepting certain amounts of early entries.

Choosing a lot size for orders or production is an important issue both for the dependent and independent demand products. Usually, the economic order quantities and economic production quantities are used to the independent demand products, whereas many different methods are used for the dependent demand systems, stemming from the fact that no method exhibits an obvious advantage over the others.

The priority of the inventory management for both of the demand types is minimizing total of the ordering and holding costs. The independent demand exhibits an even distribution during the planning horizon while the dependent demand has a more intermittent structure and a shorter planning period. Thus, it is more difficult to calculate economic lot quantities.

Andersson reports on a simulation study of hierarchical planning methods, which can be utilized in connection with material requirements planning. The company considered produces one final product having a complex structure. The factory is functionally organized. Two different cases have been studied. In the first case there were both seasonal and independent stochastic variations in demand and in the second case only stochastic variations (Andersson etal., 1981).

A simulation experiment that compares alternative procedures for determining purchase quantities in MRP systems when quantity discounts are available is reported by Benton (Benton, Clay, 1982).

3. An MRP Model

The model introduced in this section is designed to manage a manufacturing facility chosen as a model, producing a large set of SKUs (Stock-Keeping Unit), along with hundreds of components going into the production process, and a long list of suppliers list. Before building the model, below conditions that are required to successfully and efficiently utilize and use the MRP system are ensured to exist:

- Computers and software to maintain the records and execute the calculations
- Accurate and updated
- Main schedules
- Bill of material
- Inventory records
- Integrity of the information

The steps of the MRP model are as follows:

The company receives the order from the customers. Following the meeting at the end of each week, job orders are given to the manufacturing department. Inventory manager checks the inventory levels recorded using Figure 1.

The MRP software determines the material requirements moving back from the bill of materials recorded. An example of a bill of materials is shown in Figure 2.

Comparing the inventory levels with the resources required for the production, the inventory department determines the needs. The information of requirements is given to the purchasing department, using a material requirement slip in the Figure 3.

The purchasing department requests proposals from 6 different suppliers which are listed in the suppliers list. The rule of '6 suppliers' provides the purchasing department with a strong basis for comparison in its decision making process. The supplier information is recorded using the Figure 4.

The performance of these suppliers are continuously recorded and tracked, based on two dimensions: Lead times and the quality. The quality performance is calculated in terms of the defective parts received before, and number of returned products in the past.

The performance in terms of the lead times is calculated based on the comparison of the number of delayed deliveries of the past and the number of on-time deliveries. These scores are constantly updated. Figure 5 shows the track of performance for a given supplier both in quality and lead times.

Upon receipt of the proposals from the suppliers, the software evaluates the proposals on an individual product base and determines the best choice of supplier for each product as shown in Figure 6.

The purchasing department chooses the best selection of suppliers to satisfy the order and passes this information to the executive director. If confirmed, the purchasing department orders the products using the form in Figure 7.

The inventory manager distributes the received products to the appropriate point in the manufacturing as the employee initiating the ordering process is recorded using the Figure 8.

The entrance of the parts to the inventory is recorded as shown in the Figure 9, as well as the outflow of the parts either to the internal customers or to the external customers.

The software tracks which materials are used in which products as well as from which suppliers they are provided from, thus, satisfying the traceability requirement of ISO standards. Figure 10 presents the form used for this purpose in which the specific materials can be tracked throughout its movement in the supply chain.

4. Conclusion and Future Research

The traditional purchasing and logistics functions have evolved into a broader strategic approach to materials and distribution management known as supply chain management. Information technologies as one of the biggest enablers of the supply chain management, is discussed in this research. MRP as one of the most vital functions of information technologies related to supply chain management is provided.

Many employees are using the information provided by MRP in manufacturing companies with this system. Production planners, production managers, customer service representatives, purchasing managers, and inventory managers are some of them. The benefits of the MRP system depends heavily on the availability of the usage of computers which will maintain updated data about the component needs. A software developed for an MRP model is introduced as a part of this research.

Accuracy has a vital role in a successful MRP system. The mistakes in inventory records or bill of material would result in missing parts, over-ordering of some products and under-ordering of others, deviations from the production schedule, all of which cause bad results such as low level of customer service, inefficient use of resources, and untimely deliveries to the customers. Moreover, MRP system can be difficult to utilize and expensive. Thus, the companies planning to use this system must carefully evaluate the benefits and the necessities of MRP.

The software tracks the supply process of materials which starts with the materials requirement slip, followed by the proposal, confirmation, order, and inventory.

MRP model introduced in this research and utilized has proven to improve both the production and assembly operations in the model manufacturing facility. Some of these benefits are listed below:

- Low levels of in-process stocks
- The possibility to track the component needs
- The possibility to evaluate the capacity requirements suggested by the main schedule
- The possibility of distributing the production time

Future research will be conducted to enhance the capabilities of the MRP model introduced in this research and include the experimental results of the developed model as a basis for comparison with the current model. The developed model is intended to include the lead time estimations for each individual raw material in order to

improve the accuracy of estimates of order time. This additional feature is tended to reduce the lead times as a result of better planning capabilities with the extra information obtained.

References

Andersson, H., Axsater, S., Jonsson, H. (1981). Hierarchical Material Requirements Planning. *International Journal of Production Research*, vol.19-1.

Benton, W., Clay, D. (1982). Material Requirements Planning (MRP) and Purchase Discounts, *Journal of Operations Management*, vol.2-2.

Heizer, J., Render, B. (2004). Operations Management, *Prentice Hall*, USA.

Lambert, D., Cooper, M. (2000). Issues in Supply Chain Management, *Industrial Marketing Management*, vol.29-1.

Min, H., Zhou, G. (2002). Supply Chain Modeling: Past, Present and Future, *Computers & Industrial Engineering*, vol.43-1-2.

Minner, S. (2002). Multiple-Supplier Inventory Models in Supply Chain Management: A Review, *International Journal of Production Economics*, vol.81-82.

Pandey, P., Yenradee, P., Archariyapruek, S. (2000). A Finite Capacity Material Requirements Planning System, *Production Planning & Control*, vol.11-2.

Stevenson, W. (2002). Operations Management, *McGraw-Hill*, USA.

Subramani, M. (2004). How Do Suppliers Benefit from Information Technology Use in Supply Chain Relationships? *MIS Quarterly*, vol.28-1.

Şağbanşua, L. (2006). Tedarik Zinciri Yönetimi, *AB Girişimcilik Kursu Destek Yayın Dizisi*.

Simchi-Levi D., Kaminsky, P., Simchi-Levi, E., (2000). Designing and Managing the Supply Chain, *McGraw-Hill*, USA.

Taha, H., (2006). Operations Research, Prentice Hall, USA.

Tan, K. C. (2001). A Framework of Supply Chain Management Literature, *European Journal of Purchasing & Supply Management*, vol.7-1.

Thomas, D., Griffin, P. (1996). Coordinated Supply Chain Management. *European Journal of Operational Research*, vol.94-1.

Wacker, J. (1985). A Theory of Material Requirements Planning (MRP): An Empirical Methodology to Reduce Uncertainty in MRP Systems, *International Journal of Production Research*, vol.23-4.

Zipken, P., (2000). Foundations of Inventory Management, *McGraw-Hill*, Boston.

Appendix

Figure 1. Inventory Information Form

Figure 2. Bill of Materials

Figure 3. Material Requirement Slip

Figure 4. Supplier Information Form

Figure 5. Performance Track Form

Figure 6. Proposal Request Form

Figure 7. Order Form

Figure 8. Ordering Employee Information Form
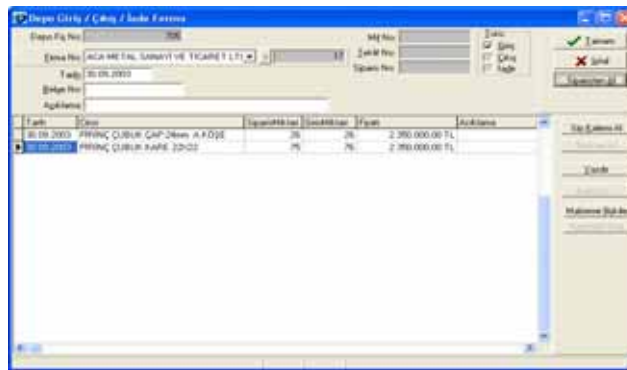
Figure 9. Inventory In/Out/Return Form
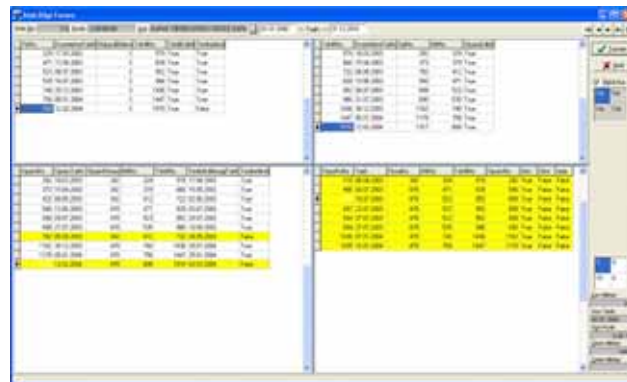
Figure 10. Inventory Information Form

Entrepreneur Business Development in Sindh: The Case of Jacobabad District

Dr. Nadeem Bhatti

Head of Faculty, North American College

730-Yonge Street, Suite No. 207, Toronto, Ontario, M4Y 2B7, Canada

Faiz.M.Shaikh

Department of Agri. Economics, SZABAC-Dokri-Larkana, Sindh-Pakistan

E-mail:faizsaikh@hotmail.com

Amir Hussain Shar

Department of Commerce, Shah Abdul Latif University, Khairpur

M.Saleem Rahpoto

Department of Economics, Shah Abdul Latif University, Khairpur

Muhammad Shahzad Iqbal

Department of Business Administration, University Of Faisalabad, Faisalabad

Abstract

The research analyzes the impact of SMEs business opportunities for entrepreneurs in Jacobabad District, The strategic development option for local economic development, especially in the rural areas of Sindh. Data were collected from 300 respondents by using simple random technique. A structural questionnaire was designed to get the reliable results. This strategy being also known as homegrown development refers to a process of supporting and encouraging people to become entrepreneurs in order to enhance the economic prosperity of a community, first, creating the environment being favorable for creativity and innovativeness; second, encouraging entrepreneurship as an eligible career option through entrepreneurial education, facilitation and recognition, and third, developing institutional support system to entrepreneurs. The main aim of this paper is to discuss the economic strength of small and medium-sized enterprises (SMEs) in the economic development of Jacobabad District, and to explore the perception of the Jacobabad entrepreneurs about the role of institutions in entrepreneurship development. The analysis indicates the SMEs have had a weak economic power. Small and medium-sized enterprises, although numerically overwhelming, employ approximately half of the total employed in the City, operate continuously with financial losses, and are oriented mostly to doing business locally. According to the perception of Jacobabad entrepreneurs, the biggest business challenges are caused by problems connected to entrepreneurial environment conditions, i.e. institutional infrastructural conditions, and the least to inappropriate profiles and inefficiency of local work force. Drown from these findings, lessons considering the process of entrepreneurship development in Jacobabad District is discussed as well. It was revealed that government should provide facilities to the entrepreneurs, credit and market facilities. It was further revealed that Rural people are facing lot challenges specially their women who are engaged in Small and Medium enterprises business. Rural women is more innovative once they are engaged in SMEs business, these illiterate women have more innovative designing of various suits, local handicraft, and other SMEs businesses.

Keywords: Entrepreneurship, Development, Jacobabad, Sindh

1. Introduction

The first part of current research paper highlights the various aspects of SMEs in terms of Entrepreneur development and their impact on the Growth of SME business and their contribution to Pakistan economy by suing various data indicators. Finally, conclusions and suggestions about the SMEs business growth and possible solution on export oriented products which can be marketed in Globalize world of business. Economic development refers to a qualitative process that describes changes in the overall economy aiming to enhance the economic well-being of a community regardless of its size. In economic literature, economic development is frequently described as being a three-legged stool where each leg represents one economic development strategy. The first leg usually refers to business attraction; the second one to business retention and the third one to entrepreneurship development. However, because this analogy assumes the existence of equality and separation among economic development strategies, more useful analogy is that of a pyramid as Dabson (2005) pointed out

Definition of SMEs in Pakistan

The Pakistan SMEs are engaging in wide rage of business activities in agriculture, mining fishing industry /manufacturing, construction retail and whole sales and services in rural urban and estate setting by servicing local and international. They are active in most of the industry sub sectors such as agricultural inputs/outputs business in rural areas to food and beverages business in city up to more advanced light engineering sectors such as computer, chemical machinery. Apparel and person show or are run by few family individuals, usually relatives, friends or business partners who take most of the decisions. Usually no distinction between private and business assets and subjective and personal factors play a large role in decision making. The personal stakes of Pakistan SMEs have in their business are much higher than those of corporate executives in their companies. This enhances the attendant and commits entrepreneurs even more strongly to the success of their enterprises. Most Pakistani SMEs in informal sector are reposting very low productivity and income therefore owners and worker are working poor high income and decent life for workers and owners this wide variation of diversity turnover/revenue, sophistication, innovation, productivity and growth orientation due to this complexity it is very hard to defines SMEs overtime in Pakistan and currently nationally acceptable single definition is not available. There are very many definitions available based on assets, employees skills capital turnover/revenue in local and exports markets, sophistication, and innovation productivity and growth orientation. But most of these definitions are made according to organizational needs and purpose of interests about SMEs. Financial institution public sector authority non-government organizing (NGOs) Trade and industry chambers international organizations researchers SMEs such as criteria selection Most of these organization used various terms for SMEs such as Small and Medium Scale Industries (SMEs) Micro Enterprises (Mes), Rural Enterprises (Res), Small and Medium Scale Activities (SMAs), Cottage and Small Scale Industry (CSSI), Informal Sector Activities (ISAs), Micro and Small Scale Activities (MSSA) etc, Generally, enterprise is defined as any business activity or entity engaged in industry agri-business and /or services whether singles proprietorship, partnership or corporate venture. This enterprise definition is universally accepted around the World .The following table shows most popular definitions of SMEs available in Pakistan.

2. The Role of SMEs in Economic Development of Jacobabad

The term small and medium-sized enterprises (SMEs) refers to the business based on legal and physical persons (companies, craftsmen and others) who, independently and permanently, pursue the allowed activities to gain profit, i.e. the income on the market. SMEs actors can be categorized into micro, small and medium-sized enterprises. Micro enterprises have less than 10 employees per year, small enterprises have less than 50 employees per year, and medium-sized enterprises have less than 250 employees per year. A precise definition of micro, small and medium-sized enterprises is provided by the Small and Medium Business Development Authority (SAMEDA-2009). A brief analysis of SMEs and their contribution to the development of Jacobabad District that follows in the continuation of this paper is based on survey-2009-10 on active enterprises. In the size-class structure of the Jacobabad enterprises, small enterprises are dominating (see table 1). Their share has been stabilized at the level of approximately 95%. The share of large enterprises accounts approximately 2%. The rest of 100% belongs to medium-sized enterprises.

Work done by McMillan and Woodruff (2002) pointed out to their role that they have in transformation of the economy from the centrally planned to market economy. However, some of scholars raised doubt about their role in assisting growth and promoting innovation since SMEs, as they said, are more engaged in their survival on a day-to-day basis (Grey, 1998). The European Union (EU) has the same size-class structure of enterprises. 99% of total enterprises in the EU are small enterprises (0-49 employees), less than 1% is medium-sized (50-249) and only 0.2% is large enterprises (250+).

Data Collection Methodology

Data were collected from 300 SMEs entrepreneurs by using simple random technique a structural questionnaire was design as an instrument tool for measuring the SMEs performance in Jacobabad. Data were analysis by using E-Views 6 statistical software.

The share of long-term asset and long-term financial asset of small and medium-sized enterprises in the total asset of Jacobabad entrepreneurs accounted 24.38% and 23.11% respectively in 2004. Such shares of assets indicate that economic power is still concentrated in large enterprises. Financial power of enterprises by size-class is shown in table 3. Only large enterprises operated financially efficient.

Poor Financial Results of SMEs are connected with their Poor Export Aggressiveness

In this research, entrepreneurs are more willing to emphasis the issues of macroeconomic characters and to express dissatisfaction with the general national framework conditions. However, entrepreneurs should not forget that they are the key of productiveness, competitiveness and export expansion as well as of better business results. Only with on-going investments in knowledge and skills of their employees, innovativeness of the whole business operations and products, new value added creation in all phases of business processes, and with meeting the excellence in them, it is possible to make products that are market demanded on the global market, and that are competitive regarding their quality and price.

3. Towards Entrepreneurial Management of the Jacobabad

Entrepreneurship development is a process of supporting and encouraging people to become entrepreneurs whereby entrepreneurship policy and programs aimed to create a favorable and supportive entrepreneurial environment within creativity, diversity, tolerance and on-going innovativeness will be encouraged; promote an entrepreneurship as an eligible career option and in general to develop entrepreneurial culture; develop an efficient and effective institutional support system to entrepreneurs. An important step in entrepreneurial management represents understanding the issues with which entrepreneurs have been facing. It can guide the local entrepreneurship policy and programs. Enhancing the quality of entrepreneurial environment is especially important task; the more favorable and supportive the entrepreneurial environment is the more number of entrepreneurs will base their growth and development on export strategy.

Perception of entrepreneurial environment quality in the Jacobabad District

The term "entrepreneurial environment" refers to a mix of factors that influence the development of entrepreneurship. According to GEM, entrepreneurial environment or entrepreneurial framework conditions are described by contextual factors such as: financial support, government policies and programs, education and training, R&D transfer commercial and legal infrastructure, internal market openness and competitiveness, access to physical infrastructure as well as cultural and social norms. These conditions are also evaluated for Croatia and their quality is compared to other GEM countries. According to Croatian experts that were interviewed in the frame of GEM research and whose opinions were served as a basis for evaluation, entrepreneurial framework conditions have been mostly unfavorable; however, in 2005 and 2006 compared with previous years, improvement in quality of the conditions are noticed (see Singer at al., 2006; 2007). Slightly more than 50% of respondents assessed that the entrepreneurial framework conditions in the Jacobabad District are bad or very bad, while only 19% that they are good or very good. The most important challenges in their operation are the challenges associated to institutional infrastructure of entrepreneurial environment (figure 1), and the least ones to inadequate profile of labor force. Baumol (1990) pointed out the importance of institution in creation of so called "rules of game" and in fostering the entrepreneurial activity in a country. Sautet (2005) emphasized that institutions are vital to the expansion of entrepreneurial activity, which is at the heart of the process of development and economic growth. According to Sautet, quality of institutions is the main determinant of productive entrepreneurship. Dallago (1997) tested the importance of institutions in a transitional setting and he concluded that social institutions have more important role in economic performance and economic growth through allocation of entrepreneurs on productive and unproductive, than the entrepreneur supply alone has. Many scholars who explored the role of institutions in entrepreneurship indicated its importance as well (e.g. Hart, 2003; Dallago; 2005; Aidis and Estrin, 2005). Thus, it is important to evaluate the efficiency and effectiveness of institutions and their contribution to the entrepreneurship development and economic growth.

4. Conclusion

This research explores the performance of SMEs business in Jacobabad District. Rural people are facing lot challenges specially their women who are engaged in Small and Medium enterprises business. Rural women is more innovative once they are engaged in SMEs business, these illiterate women have more innovative designing of various suits, local handicraft, and other SMEs businesses. Rural people are facing with poor economic situations at the beginning of 21st century. It was also observed that most of the women have been killed in Karo Kari and those feudal lords are saying honour killing. In these situation rural women is still self dependent and feeding their whole family. Thus, the economic gap between these cities and Jacobabad has becoming increasingly larger. Formulation and implementation of entrepreneurship development strategy can contribute to community's faster and more qualitative development. Since entrepreneurship development strategy is directed to a process of supporting and encouraging people to become entrepreneurs in order to enhance the economic prosperity of a community, it is suitable for development of rural or depressed areas as it is the region Slavonia and Baranja. The entrepreneurship development depends on the quality of entrepreneurial framework conditions, including in which extent the environment and entrepreneurial climate support creativity, diversity, tolerance and continuous

innovativeness, in which extent 'can-do' mentality has been developed (in a sense are people willing to accept risk, what they think about business failures), and how efficient and effective is the institutional support. The brief analysis conducted in this paper indicates that the SMEs have had a weak economic power. Even tough they are numerically overwhelming; they employ approximately half of the total employed in the City, operate continuously with financial losses, and are oriented mostly to doing business locally. According to the perception of Jacobabad entrepreneurs, the biggest business challenges are caused by problems connected to entrepreneurial framework conditions, i.e. institutional infrastructural conditions, and the least to inappropriate profiles and inefficiency of local labor force. Drown from these findings; we can conclude that entrepreneurial management system of the Jacobabad District should be redefined and that the synergic effects failed.

References

Acs, Z. (2007). Entrepreneurship, Economic Growth and Public Policy, *Small Business Economics,* Vol. 28, 2.

Aidis, R. (2003). *Entrepreneurship and Economic Transition*, Tinbergen Institute, Discussion paper, TI2003-015/2, 1-29.

Aidis, R., Estrin, S. (2005). Weak Institutions, Weak Ties and Low Levels of Productive Entrepreneurship in Russia: An Exploration, draft, December.

Audretsch, D. B., Thurik, R.A. (2000). Capitalism and Democracy in the 21st Century: From the Man-aged to the Entrepreneurial Economy, *Journal of Evolutionary Economics,* 10.

Audretsch, D.B., Keilbach, M.C., Lehman, E.E. (2006). *Entrepreneurship and Economic Growth,* Oxford University Press, USA.

Baumol, W.J. (1990). Entrepreneurship: Productive, Unproductive and Destructive, *Journal of Political Economy*, 98, 5(1).

Borozan, Dj. (2006). Drustveno-ekonomska dimenzija razvoja Grada Jacobabad a, in: Strategy of the Jacobabad District, Singer, S. (ed.), draft version.

Carree, M., Thurik, R. (2005). Understanding the Role of Entrepreneurship for Economic Growth, Max Planck Institute of Economics, Discussion Papers on Entrepreneurship, *Growth and Public Policy*, no. 2005-10.

Dabson, B. (2005). Regional Competitiveness, Innovation and Entrepreneurship, Economic Development and the University of Missouri-Columbia, *Framing the Debate*, Working Paper no. 1.

Dallago, B. (1997). The Economic System, Transition and Opportunities for Entrepreneurship, Ch. 7, in Entrepreneurship and SMEs in Transition Economies, The Visegrad, Conference, Paris: OECD.

Dallago, B. (2005). *Institutions and Entrepreneurship*: A Comparative Evaluation of South-Eastern Europe, Working Paper no. 1.

Grey, C. (1998). *Enterprise and Culture,* London, Routledge.

Hart, D.M. (ed.). (2003). Emergence of Entrepreneurship Policy, Governance, Start-Ups, and Growth in the US Knowledge Economy, Harvard University, Massachusetts.

McMillan, J. & Woodruff, C. (2002). The Central Role of Entrepreneurs in Transition Economies, *Journal of Economic Perspectives,* 16, 3, Summer.

NCE - National Commission on Entrepreneurship: Rebuilding Urban Neighborhoods: Entrepreneurship & Community Development, February 26, 2002 http://www.zeromillion.com/entrepreneurship/ncoe/community-development.html (accessed June 21, 2007)

Sautet, F. (2005). The Role of Institutions in Entrepreneurship: Implications for Development Policy, Mercatus Center, George Mason University, February.

Singer, S., Sarlija, N., Pfeifer, S., Borozan, Dj., Oberman Peterka, S. (2006). Sto cini Hrvatsku poduzetnickom zemljom?, Rezultati GEM 2002-2005 za Hrvatsku, CEPOR, Zagreb.

Singer, S.; Sarlija, N., Pfeifer, S., Borozan, Dj., Oberman Peterka, S. (2007). Sto cini Hrvatsku poduzetnickom zemljom? Rezultati GEM 2006 za Hrvatsku, CEPOR, Zagreb.

Singer, S. (2006). Od industrijskog do inteligentnog grada, in: Strategy of the Jacobabad District, draft version, Singer, S. (ed.).

Sober, R.S. (2006). Testing Baumol: Institutional Quality and the Productivity of Entrepreneurship, Dept. of Economics, West Wirginia University, Working Paper no. 06-06.

Snijders, J., van der Horst, R. (2002). SMEs in Focus: Main Results From the 2002 Observatory of European SMEs, Observatory of European SMEs, Office for Official Publications of the European Communities, Luxembourg.

Small Business Development Promotion Act, Official Gazette, 29/2002.

Wennekers, S.& Thurik, R. (1999). Linking Entrepreneurship and Economic Growth, *Small Business Economics,* 13, 1.

Table 1. The size-class Structure of Jacobabad Enterprises

	Number of enterprises				Share portion in % Economic		
	Small	Medium-sized	Large	Total	Small	Medium-sized	Large
2002.	600	60	33	693	45	10	5
2003.	711	61	36	808	47	11	4
2004.	714	64	37	815	50	09	5
2005	800	70	40	910	52	09	4
2006	813	72	42	927	51	08	5
2007	1100	78	42	1220	52	09	6
2008	1200	81	45	1326	53	10	5
2009	1260	89	48	1397	54	09	4

Source: Survey 2009-10
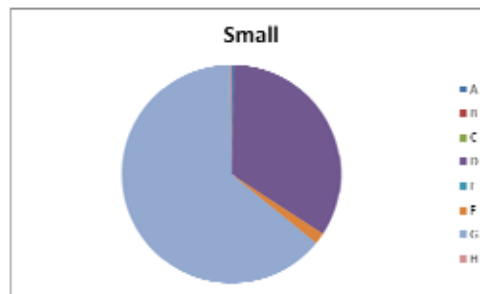
Table 2. Number of Employees (Situation at the end of period)

	Average number of employees				Share portion in %		
	Small	Medium-sized	Large	Total	Small	Medium-sized	Large
2002.	769	277	40	1086	31.65	20.00	48.35
2003.	972	328	76	1376	35.00	19.00	46.00
2004.	214	401	71	686	36.50	19.56	43.94
2005	316	522	61	899	40.00	20.00	44.66
2006	786	554	71	1411	41.00	21.00	45.90
2007	765	576	67	1408	42.00	22.00	46.00
2008	842	600	88	1530	43.00	23.00	44.00
2009	888	611	84	1583	43.5	24.00	43.00

Source: Survey-2009
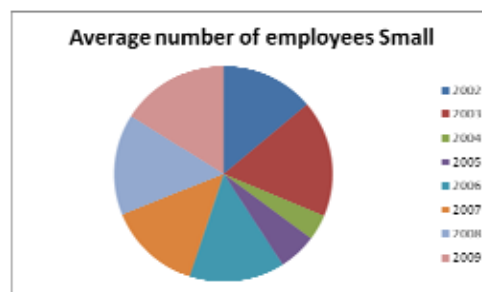
Table 3. The basic financial indices of Jacobabad District entrepreneurs by size-class

	Small			Medium-sized			Large		
	Earning	Loss	Financial Result	Earning	Loss	Financial Result	Earning	Loss	Financial Result
A	632.38	779.28	-146.90	758.06	623.75	134.30			
B	0.66								
C	61.68	313.04	-251.36						
D	3719.48	4117.58	-398.10	614.47	2580.74	-1966.27	30031.09	11181.33	18849.76
E							330.78		330.78
F	1178.54	1074.41	104.12	620.27	0.00	620.27	3072.18		3072.18
G	7247.29	19294.78	-12047.49	2174.52	295.63	1878.89	10592.39	591.59	10000.80
H	124.35	675.98	-551.63		1531.20	-1531.20	0.00		
I	582.80	327.79	255.01	69.31	564.07	-494.76	248.54		248.54
J	437.56	8440.42	-8002.86						
K	3955.92	1636.82	2319.10	688.58	20765.30	-20076.71			
M	75.61	4.81	70.80						
N	14.26	0.17	14.09						
O	687.59	262.47	425.12	7.63		7.63	125.68		125.68
Total	18718.12	36927.54	-18210.09	4932.84	26360.69	-21435.48	44400.66	11772.92	

1. Source: Survey-2009

2. Code: A – agriculture, hunting and forestry; B – fishing; C – mining and quarrying; D – manufacturing; E – Electricity, gas and water supply; F – construction; G – wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; H – hotels and restaurants; I – transport, storage and communication; J – financial intermediation; K – real estate, renting and business activities; L – public administration and defense, compulsory social security; M – education; N – health and social work; O – other community, social and personal service activities

Table 5. Income generated abroad by size-class of Enterprises in 2009

				Share portion in %		
	Small	Medium-sized	Large	Large	Medium-sized	Small
A	108.93			0.04		
B						
C						
D	8123.73	3426.51	228561.87	2.90	1.22	81.68
E						
F	405.89	462.26	877.77	0.15	0.17	0.31
G	15378.33	2891.13	9806.15	5.50	1.03	3.50
H	62.67	6.96		0.02		
I	2887.31	2985.97	1559.06	1.03	1.07	0.56
J						
K	1426.41	519.96		0.51	0.19	
M						
N						
O	210.74	112.75		0.08	0.04	
Total	28604.02	10405.53	240804.84	10.22	3.72	86.06

Source: Survey-2009

Code: A – agriculture, hunting and forestry; B – fishing; C – mining and quarrying; D – manufacturing; E – Electricity, gas and water supply; F – construction; G – wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; H – hotels and restaurants; I – transport, storage and communication; J – financial intermediation; K – real estate, renting and business activates; L – public administration and defense, compulsory social security; M – education; N – health and social work; O – other community, social and personal service activities
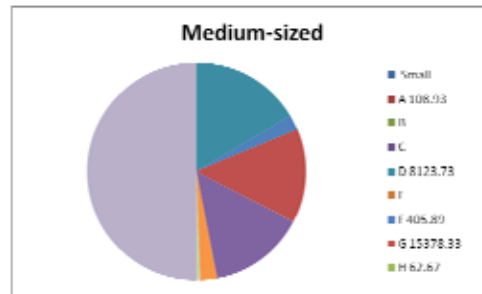
Table 6. Prerequisites of SMEs development in Jacobabad (entrepreneur perspective)

Prerequisite	Mean
Corruption elimination	4.68
Reduction of informal economy	4.67
Different and numerous financial sources	4.35
Easier loan procedures	4.27
Local government concern	4.24
Cooperation among entrepreneurs	4.13
State government concern	4.13
Protection from foreign competition	3.75

Source: Survey-2009

Global Service Network and the Choices of China

Jun Zhang

School of Economics, Jinan University

601 West of Huangpu Road, Guangzhou 510632, China

Tel: 86-20-8522-1478   E-mail: tjunzh@jnu.edu.cn

Abstract

Global production network has become the main competitive force on the micro level in the process of globalization, which is monopolized by transnational corporations. After the transfer of manufactures from developed countries to developing countries, global transfer turns to service industry, especially the transfer of knowledge intensive services such as financial services, professional services, information services, research and development and technology. The paper constructs a framework to analyze the network and its impact on globalization and how China's knowledge intensive service industry has developed by being involved in the global service network. It draws the conclusion that by involving in global service network, which incorporates knowledge transfer mechanism, the developing countries can acquire later-comer advantage and develop their industry in some period, but the lock-in trap would be damage to their further development.

Keywords: Knowledge Intensive Service Industry, Global Service Network, Transnational Corporations, China

1. Introduction

In many parts of the world the production of output is changing from a machine or manufacturing economy to an information economy and from an industrial to a service economy. Global production network(GPN), which is monopolized by transnational corporations(TNCs),has become the main force competing with each other in the process of globalization.

Gereffi proposed the concept of global value chain (GVC) and classified GVC as producer-driven and consumer-driver. He also systematically organized the study of the pattern and the mechanism of industrial upgrading.(Gereffi,1999) Ernst constructed a model of the global production network, which he defined as series of enterprises which produced and provided production and service. He applied the model to analyze the global transfer of manufacture such as the information industry.(Ernst,1999) Based on his research, Ernst found that flagship not only outsourced manufacture but also high-end knowledge intensive sectors. At the same time, the effect of the global production network on knowledge diffusion was neglected, especially its effect on knowledge intensive supporting services and knowledge diffusion to low cost areas. Ernst also thought it was necessary to focus research on the widely dispersed knowledge intensive service industry, which was closely related to production. (Ernst,2000) Even though the service industry has no formal R&D, it can bring learning and innovation, and so the service industry should be incorporated in this framework.

There is extensive research on knowledge intensive service industries worldwide. Wiles, Windrum, Tomlinson,among others, defined knowledge intensive service industry and classified them.(Miles,1997; Windrum, Tomlinson, 1999) Weijiang and Muller explored the basic theories about service innovation and the innovation of knowledge intensive service industry. They undertook research on the innovation patterns and paths of the knowledge intensive service industry and discussed the role of the knowledge intensive service industry on the national and regional innovation system.(Weijing,2004; Muller,2001) Strambach discussed the knowledge intensive service industry as the carrier of knowledge transfers. (Strambach,2001) Penato and Arianna analyzed the development of the knowledge intensive service industry from the aspects as inner relationship (including formal and informal organization structure), exterior relationship (including exterior environment, customers and competitors) as well as the relationship between inner network and exterior network. (Penato, Arianna, 2003) The above researches focus on the definition, the classification and the characteristics of knowledge intensive service industry as well as its role in knowledge transfer and innovation system, but no one talks about the development of the industry with the progress of globalization and global industry transfer.

2. The formation and the basic structure of global service network

With services sectors, especially knowledge-intensive service sectors being higher value added sectors, more and more service-oriented multinational companies break down the service industrial chains and transfer parts of them to developing countries to make full use of the cheap labor resources along with high technology. This forms a global service network (GSN) with the service-oriented multinational corporations from developed

countries as the core. With their control of high technology and market resources they establish market control. There are also high and low level suppliers. (refer to Figure 1).

The global service network is led by multinational companies from developed countries such as the United States, Europe, Japan and other developed countries. Their competitive advantage comes from the experiences and methods developed in highly advanced service market in the home countries, day-to-day accumulated resources, long established reputation and image of the companies gained in fierce international competition and abundance of high-level human capital. For better allocation of resources in world competition, the flagships transfer parts of their knowledge-intensive service industries to developing countries. The United States controls about two-thirds of the world markets, Japan and Europe about one-third and the receiving countries are mostly from Asia. Currently there are many countries that receive transfers of knowledge-intensive service industries from multinationals in United States, Europe and Japan. They include Russia and Ireland in Europe, Mexico in North America, Argentina in South America, China, Korea, India, the Philippines, Malaysia and Singapore in Asia, The Czech Republic, Romania, Hungary and Estonia in Eastern Europe as well as Israel and several Caribbean countries.(refer to Table 1)

The service providers in the global service network can be classified into two types. The first type is countries who receive the transferred knowledge-intensive service industries via the transfer of the manufacturing sectors. After the establishment of the manufacturing sectors, the demand for services that support manufacturing especially producer services increased. The function of high and low level suppliers in the global production networks extend from manufacturing to design and includes product development and design and even R&D, which in turn necessitated the transfer of knowledge intensive service industries. The major countries that received such transfers were China and Philippines. The second type are production facilities in countries who directly undertake the transfer of knowledge intensive service industries from developed countries and thus integrated into the global service network, such as India and Ireland.

The characteristics of receiving countries are, first, an intelligent, well-educated and creative human resources base. Second, the countries have low labor costs. The salary of technical and management staff in newly industrialized countries is about one tenth to one seventh of those in the same position in Britain and the United States.(Note 1) IBM, for example, pays a programmer 56 U.S. dollars per hour, while in China it pays just 12.5 U.S. dollars per hour.(Note 2) The third, in the way of industrialization these countries improve their infrastructure, business climates and technical conditions. All of these provide material conditions for their capability to provide services.

3. The development of knowledge intensive service industry in China by engaging in global service network

3.1 The global transfer of knowledge of intensive service industry

An indication of the rapid spread of the transfer service industry is the dominant role played by the industry in foreign investment. With the global expansion and growth of investment in knowledge-intensive service industries such as finance, insurance, information, accounting and legal services to facilitate global trade, the structure of world trade in services changed a lot. The cross-border investment of the service industry and the rapid growth of the knowledge-intensive service trade accelerated the international transfer of knowledge-intensive service industries. Outsourcing in the market for global software and information services is increasing in the rate of 20% yearly, increasing from 510 billion U.S. dollars in 2003 to 2 trillion U.S. dollars in 2010. It covers finance, insurance, health care, human resources, asset management, customer relationship, marketing and so on.

3.2 China engaging in global service network

The transfer of manufacturing processes by transnational companies increased the demand for service industry transfer. Service companies had to move globally to provide services and support networks. The global transfer of services provided an opportunity for developing countries such as China to engage in the global service network. As a result China's service network developed rapidly.

In the software industry, for example the flagships in the global software network are multinational companies from the top three countries of the U.S., EU and Japan, such as Microsoft, IBM, HP and so on. The United States has for a long time been the leader with core technologies and ability to set standards. Transnational corporations from the United States monopolized more than 90% of the infrastructure software in the world. With the international division of labor in software industry, the software multinational companies from the United States, EU and Japan transfer domestic production to low-cost developed countries and developing countries, providing

an opportunity for these countries to participate in the global software market. With the expansion of the service markets, the production chains transferred by the flagships increased and as a result the local service providers expanded their capabilities in areas such as application and infrastructure management, consulting, systems integration and software services. Flagships began to specialize their operation in different countries. For example, instead of establishing research institutions in all countries as before, they develop software in R&D centers in selected countries. On the other hand, the flagships kept the core and high-end technology in home country in order to maintain innovative capability and competitiveness.

The software vendors from India, Ireland and so on grew up rapidly by undertaking businesses transferred by flagships. They are the second layer in global software network and countries having strength in software industry. In addition to India and Ireland, China, Russia, Brazil, Vietnam, the Philippines and other emerging countries have the option of transferring software services because of their high level of education and low wages, and they constitute the third layer in global software network. The software vendors in this layer are mostly engaged in the low value-added production chains of software industry but with great potential for development.

As a country in the third layer in the global software network, China was slow in undertaking the transferred software businesses, but is now growing rapidly. In the first quarter of 2008, the scale of domestic software outsourcing market reached 3.927 billion RMB Yuan with a year-on-year rise of 25.27%. At present, the software industry in China is still behind that of countries in the second layer such as India and Ireland. The overall size of China's software market is also small and in the early stage of development, but with its unique advantages many transnational corporations are considering it as a strategic center.

There are mainly three ways for China to participate in the global software network. The first, China undertakes businesses through the subsidiaries set up by foreign multinational companies or the offshore development center (ODC) in China, the value of which is largest. Multinational companies such as IBM, Microsoft, HP all transfer their own software business or that from the global headquarters. In addition the R&D centers in China by foreign multinational companies are also the important sources for China to undertake the transferred software industry. Currently the software businesses transferred from the U.S. market are through the R&D centers of American multinational corporations in China. The second is to undertake business directly from contractors or foreign subcontractors.   The volume of this business is large, but the value is low. The third is to undertake businesses through service agencies.

3.3 The benefits from engaging in global service network

Engaging in global service network has greatly aided the development of the service industry in China. The benefits are the following.

First, engaging in the global service network is an important way for China's service companies to acquire advanced foreign technology, management experience and access to international markets.

Set using software industry as an example. Flagships in the software global production network have formed matured system of enterprise technology standards. Meeting its technical standards is the prerequisite to undertake the transferred businesses and become a software provider in software global production network. Through participation in software global production network, domestic software companies can learn foreign advanced technology and gain management experience, as well as upgrade the professional necessary skills to complete businesses in industrial chain. For example, HP China provides solutions and industry experience for partners in the procurement from and transferring businesses to China, which helps to improve the capabilities of China's software companies. After being the software outsourcing company of E5Systems, Kingdee established a "software factory" with 3000 employees in Shenzhen with the assistance of E5Systems, which is responsible for the software outsourcing business in North American market. The subsidiaries set up in China by software flagships from the European countries and the United States to cope with the transfer of businesses provide matured business model for Chinese software enterprises. The operation centers set up by Indian suppliers in China brought improved procedures and technologies with spillover effects. In addition, the R&D centers set up by multinational companies in cope with the transfer of businesses further enhanced the strength of the software industry in China.

To meet the standards of flagships and improve the quality of businesses, software companies in China achieve all kinds of certifications, which enhance their level of project management and process management capabilities. Since Neusoft Co., Ltd. passed assessment of the CMMI Level5 in 2004, China has become the fourth country with CMMI Level5 certification after the United States, India and Japan. By the end of 2006 38 software enterprises have achieved CMM5 (including CMMI5) certification in China. 23 enterprises achieved CMM4

(including CMMI4) assessment, and more than 200 software enterprises achieved CMM3 (including CMMI3) or above assessment. In addition 2136 enterprises achieved systems integration qualification.

Secondly, there is a big improvement of China's service industry in general.

The software industry in Beijing, Shanghai, Guangzhou, Shenzhen, Dalian, Hangzhou, Xi'an and other places developed rapidly. Dalian and Xi'an serve mainly the Japanese market. Beijing and Shanghai began to open the European and American markets. Shenzhen and Guangzhou serve mainly Southeast Asia, Hong Kong and Macau. The model set up by the software industry in Shenzhen and Hong Kong gets orders in Hong Kong and does development in Shenzhen. There were more than 700 software companies in Hong Kong, of which more than 200 set up branches in Shenzhen, thus forming the model of "shop in front and factory at back" for the software industry. The average growth rate reached 40% during the 10th Five Year Plan Period. A clustering effect is evident as there are 11 national software industry bases concentrated in Beijing, Shanghai and other cities, six national software export bases, 29 the State Torch Program software industry bases and 172 state-level key software companies, and 41 export-oriented enterprises. In 2007 the contracted software exports was almost 1.9 billion U.S. dollars (not including embedded software), an increase of 64.89% comparing to the same period in 2006. There were 1179 registered software export enterprises. The software export markets are diversified. In 2007 the number of export markets (regions) reached 94, 35 more than that in 2006.

Thirdly, the service companies in China enhance their abilities by engaging in global service network, moving up to high value-added industry chains. Some companies even construct their global service networks.

With the software businesses transferred from Japanese market as an example, the Japanese companies initially only transferred the coding businesses to China's software enterprises in order to reduce costs. This enabled China's software enterprises to participate in software development by learning software knowledge and management experience from Japanese companies. By a deeper understanding of the needs of their Japanese customers, Chinese enterprises are able to complete large-scale developments. Finally, by further enhancing their technical capabilities and management, Chinese enterprises are now able to completely undertake the transferred businesses from Japanese customers. The software development projects performed by Chinese companies are mainly for the European and American market, which indicates the software industry is, with its accumulation of experience and enhancement of capability, moving up to the high and middle end of the industry chain. The business undertaken by China's software industry is in financial services, telecommunications, and software localization and so on, and is gradually moving up to the high value-added industrial chains of the software industry.

In addition, the service vendors in China are gradually becoming aware of the importance of brand, and the industrial clustering effect is also increasingly obvious. With the strengthening of international competitiveness of the whole industry, the service industry in China develops rapidly.

4. Conclusion

The global service industry, which acts as the knowledge organization and transfer point has tremendous spillover potential for the developing countries. And, based on the above analyses, the knowledge intensive service industry in developing countries such as China are achieving rapid development and acquiring late-comer advantage by engaging the global service network. To realize that the competition in world economy shifts to the framework of global network monopolized by the transnational corporations is important for developing countries. When they are involved in such a network, they can better implement the strategy of being close to flagships and moving up to the high value-added chains. At present, the global knowledge intensive services market is controlled by the translational companies from the United States, Europe and Japan. By being closer to flagships, more advanced technical expertise, marketing concept and scientific management experience can be learned. By participating in the strategic alliance of flagships, China can undertake more knowledge intensive service industries like financial services, information services, computer applications, and move up to the upstream of the value chain with high added value components as software development, research and development, product design, financial accounting and financial background services.

There are also risks if the developing countries rely too much on the relationship between transnational corporations as the flagship and suppliers. The lock-in effect may be barrier for developing countries when they are on their way of industry upgrading. China is in the dilemma. China has developed its manufacturing a lot by engaging in global production network, but now it is hard for it to make further progress in industry upgrading. It is also one of the questions left for further research.

The last of the big tasks for China is to improve its own competitiveness. In order to attract the international

transfer of knowledge intensive service industries and make full use of spillover effects, China's knowledge intensive service firms need to strengthen their competitive ability. The effective way to international recognition is to achieve industrial assessment such as CMMI, CMM, PCMM, ISO27001/BS7799, ISO20000 and SAS70. It is also very important to have abundant talents. When it is time for China to be the flagship and build its own networks, having enough talents will be fatal in the global competition.

Global service network has provided a new path for the global competition and cooperation. How developing countries can make full use of this mechanism on their way to upgrading industries and sustain their development, especially for countries as China, whose manufacturing sector has been engaged in such a structure for a long time and faced the dilemma is a question for further research. Also more research is needed on the reciprocal effect between manufacture sector and service sector, and its role in structural adjustment of industries in a country.

References

Gereffi G. (1999). International Trade and Industrial Upgrading on Apparel Commodity Chain, Journal of International Economics, 48(1):37-70.

Ernst D. (1999). How Globalization Reshape the Geography of Innovation Systems, DRUID Working Paper .

Ernst D. (2000). Global Production Network and Industrial Upgrading- A Knowledge-Centered Approach, East-West Center Working Paper No.5.

Miles I. (1997). Services and the Knowledge-Based Economy: Not So Peculiar After All?, Seventh International Forum For Technology Management, Japan.

Windrum P., Tomlinson M. (1999). Knowledge-Intensive Service and International Competitiveness: A Four Country Comparison, Technology Analysis&Strategic Management, Vol.11. (3): 391-408.

Wei Jiang, Mark Boden. (2004).Knowledge Intensive Service Industry and Innovation, Beijing Science Publishing House, (in Chinese)

Muller M., Zenker A. (2001). Business Services as Actors of Knowledge Transformation: The Role of KIBS in Regional and National Innovation Systems, Research Policy, (30): 1501-1516.

Strambach S. (2001). Innovation Processes and the Role of Knowledge-Intensive Business Services, In Koschatzky, K., Kulicke, M., Zenker A.(Eds.), Innovation Networks-Concepts and Challenges in the European Perspective, Physical Heidelberg.

Penato Fiocca, Arianna Gianola. (2003). Network Analysis of Knowledge-Intensive Services, IMP Conference, Sep.

Zhu Xiaoming. (2006).Transfer and Undertaking: Grasping the New Opportunity of Service Outsourcing,http://fdi.gov.cn/pub/FDI/wzyj/yjbg/zgwstzbg/2006chinnainvestmentreport/t20061219_68012.htm (in Chinese)

Notes

Note 1. The date is from The Trend of Transfer of Global Services and Its Effect, Study Times, No.258. (in Chinese)

Note 2. The data is from Yao Guohui. 2004 The Transfer of Global Services-the Knowledge Intensive Service Industries Transferred by Developed Countries in Scale to Developing Countries ,International Commercial Newspaper. (in Chinese)

Note 3. The data is from Lu Lu.2004.China Entered Global Outsourcing Marker, International Business Daily, September 18. (in Chinese)

Note 4. The data is from The Rising and Hardship of China's Software Outsourcing, ChinaByte, September 9,2004. (in Chinese)

Note 5. The data is from Lai Youwei.2004.*The Development of International Transfer of Service Industry and The Hotspot In Attracting Investment in China*, International Trade, Vol. 4. (in Chinese)

Note 6. CMM, Software Capability Maturity Model, is the description of capability in the process of organizing software development. The core of it is to look software development as a process, then supervise and research on the software development and maintenance according to the principle, thus make it more scientific and standard, which enable enterprises to better fulfill commercial targets. There are five levels in CMM. The highest level is CMM5. CMMI, Software Capability Maturity Model Integration, focuses on the four aspects as cost and

profit, clarifying the key point, process concentration and aglity.

Note 7. The data is from Zhang Jie.2004.*Neusoft Achieved CMMI Level5 Assessment*, China Computer User, Vol.47. (in Chinese)

Note 8. The data is from *The Industrial Environment of China Service Outsourcing*, China Service Outsourcing Net, January, 2008. (in Chinese)

Note 9. The data is from *The Industrial Environment of China Service Outsourcing,* China Service Outsourcing Net, January, 2008. (in Chinese)

Note 10. The data is from *Shanghai Software Export Enterprises are No. 1 in China,* Economic Daily, March 1,2007. (in Chinese)

Note 11. The data is from Cheng Dong.2006.*Software and Information Service Export Contributes A lot in Building Innovative Country*,http://zys.mofcom.gov.cn/aarticle/cm/200607/20060702692092.html. (in Chinese)

Note 12. The data is from The Commercial Department: The New Trend of Software Export in China,Xinhua Net, June 23,2008. (in Chinese)

Table 1. The types of knowledge intensive service industries in different countries

Countries	KIS	Countries	KIS
Ireland	The center of software outsourcing in Europe	Korea	Cartoon, games
Russia	Software	China	Software outsourcing, data processing
India	Call center, software development, engineering and design, background design and data input	Philippine	Call center, cartoons, data input, medical image processing
Israel	R&D center, software	Singapore	Asian information port, background support of financial services
Malaysia	Background process, customer service, information of ASEAN	The Caribbean	Data input, call center

Source: compiled by the author.
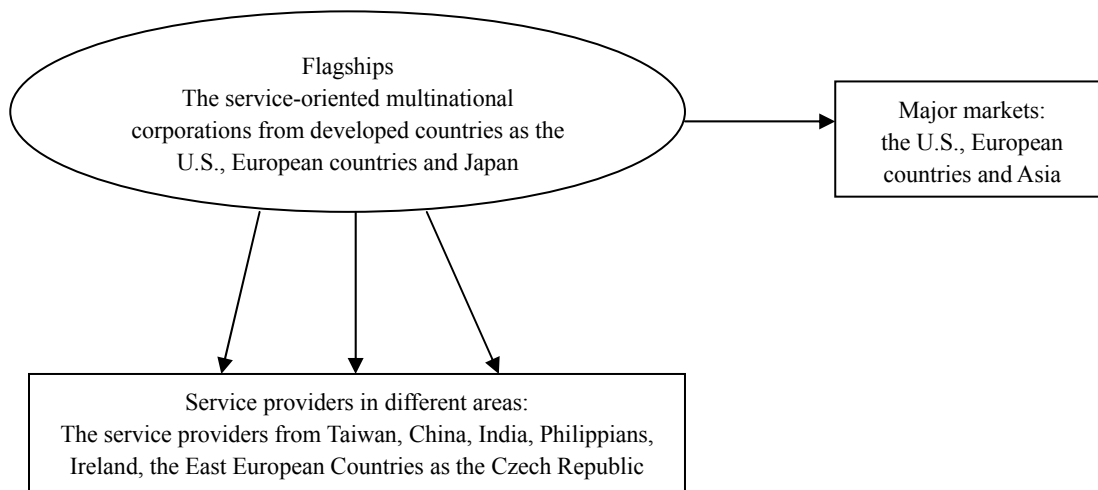
Figure 1. the Global Service Network Led by Multinational Corporations from Developed Countries

Implementation Mechanism of Ethics in Business Organizations

Dr. Md. Abdul Jalil

Department of Business Administration, Faculty of Economics and Management

International Islamic University, Malaysia (IIUM)

E-mail: abduljalil@iiu.edu.my, abd_jalil2@yahoo.com

Ferdous Azam

Department of Business Administration, Faculty of Economics and Management

International Islamic University (IIUM), Malaysia

E-mail: sakeebferdous@gmail.com

Muhammad Khalilur Rahman

Department of Business Administration, Faculty of Economics and Management

International Islamic University (IIUM), Malaysia

E-mail: abd_khalil2@yahoo.com

Abstract

Ethics and ethical behavior are issues which are increasingly being focused on the business community today. People are becoming more concerned about what is actually happening in business organizations in the name of competition, growth, and profitability. Organizations are crossing the red zone of ethics and ethical behaviors. A growing number of organizations are constantly surveying and evaluating the unethical practice in business organizations worldwide. The purpose of this paper is to examine the importance of ethical practices and how to implement those ethical practices in business organizations. It is empirically proved that ethical practices in business organizations help to create favorable relationships with other organizations and can also establish long-term positive relationships with existing and potential future customers. Descriptive and analytical research methodology is applied in this research paper. The findings of this paper is that it is very essential to have a code of business ethics in every business organization and this code of business ethics must be implemented in the organization in objective and effective way.

Introduction

At the present time, governments and stakeholders in business organizations are emphasizing on the code of business ethics. Business ethics managers also do not deny the importance of having a code of business ethics to be complied with by the employees of business organizations. Every year many cases of unethical practices take place in different business organizations world wide. That is why academic scholars and corporate practitioners are also worried about the increasing number of unethical practices occurring in business organizations.

Academic scholars are writing a lot of books on business ethics and asking business managers to practice themselves and to implement those ethical principles in their organizations. Universities in almost all countries in the world are teaching 'business ethics' as a compulsory or elective course to their students. They believe that today's students are future managers and executives of different business organizations. So, they should know the importance of business ethical principles starting from their student life.

Governments of different countries are either preparing a code of business ethics and asking business organizations or associations to implement it properly among employees or asking business organizations to prepare their own code of business ethics and to implement it in their organizations properly. The later is known as self-regulation and implementation of business ethics in business organizations on their own initiative. But the best way to implement business ethics is for the government to prepare a code of business ethics in consultation with the association of business organizations and asking them to implement those ethical principles effectively and completely. The government should have a monitoring branch to monitor the implementation of the ethical principles in business organizations and if needed to take legal action against business organizations which do not

implement the code of business ethics or show negligence in implementing (of - delete) business ethics. So, the monitoring branch should have legal powers to impose penal provisions under subsidiary laws.

Unethical practices in business organizations cause enormous harm to stakeholders of business organizations. The best example is the sub-prime loans given to borrowers in the US in 2008 which brought down the economy of the US and also badly affected the economy of the whole world (Ebrahim, 2008; Siddiqi, 2008). The economy of the whole world suffered from serious economic slow down, thousands of employees became unemployed, and investors lost billions of dollars and so on.

It is very important that business organizations practice universal business ethical principles to ensure the best practice and best governance in business organizations. Proper implementation of business ethics in organizations can ensure maximization of lawful profits and effectively protect the interests of all stakeholders of business organizations including corporate social responsibility of business organizations about which much has been said and written by academic scholars (Sealy, 1987, 2001; Petrini and Pozzebon, 2009; Blumberg, 1970; Machan 2009). This eventually can ensure a viable and competitive business environment worldwide and such a viable and completive business practice is very much needed in the world of business as well as in the capital market. The authors sincerely believe that preparing and implementing a code of business ethics is of paramount importance in the business and capital market in the world at the present time as well as for the future. The contents of business ethics may vary from country to country. However, we believe that there are some universal ethical business principles which all the countries in the world should incorporate in their code of business ethics. As stated in the abstract, descriptive and analytical research methodology is applied in this research to discuss the importance of having a code of business ethics and a mechanism to properly implement the code of business ethics within business organizations. The overall objectives of this research paper are:

(1) To determine the importance of ethical behavior in business organizations.

(2) To determine the possible contents of a code of business ethics;

(3) To recommend ways how to implement this code of ethics in the business organizations.

Literature Reveiw

Ethics and business ethics

The word '*ethic*' comes from the Greek word ethos, which means "the character, custom or a set of moral behavior that is accepted extensively." According to Solomon (1984), the etymology of ethics suggests its basic concerns are: (1) individual character, including what it means to be "a good person," and (2) the social rules that govern and limit our conduct, especially the ultimate rules concerning right and wrong, which we call morality. Ethics also can be defined as the conception of what is right and fair conduct or behavior (Carroll, 1991; Freeman and Gilbert, 1988). Ethics is the concept of morals; one's ability to choose between right and wrong, good and bad, acceptable and unacceptable (Desjardins, 2009; Valasquez, 2009).

The concept of 'Business Ethics' has come to mean various things to various people. Velasquez (2009) identified business ethics as a specialized study of moral right and wrong; whereas Garrett (1970) defined business ethics as the relationship of business goals and techniques to specifically human ends. It studies the impacts of acts on the good of the individual, the firm, the business community, and society as a whole. According to Weihrich and Koontz (1994), business ethics is concerned with truth and justice and has a variety of aspects such as the expectations of society, fair competition, advertising, public relations, social responsibilities, consumer autonomy, and corporate behavior in the home country as well as abroad. Business ethics is the standard of conduct and moral values governing actions and decisions in the work environment (Boone and Kurtz, 2005) and it is based on broad principles of integrity and fairness and focuses on stakeholders' issues such as product quality, customer satisfaction, employee wages and benefits and local community and environmental responsibilities. In business organizations, managers debate on this issue because there is no single satisfactory standard of ethical action agreeable to everyone that a manager can use to make specific operational decisions (Laczniak, 1983). However, there are people who see business ethics as important as the profit the organization derives. Besides, many people believe that talking about ethics, values, integrity, fairness is not only acceptable in the business community but it is practically required (Stodder, 1998). Consequently, management practitioners should continue to focus attention on the ethics climate in their organizations because of their unique responsibilities. Ethical considerations conspicuously affect business organizations of all sizes as they affect all forms of human activity. A question exists, however, concerning similarities and differences in the ethical concerns and attitudes prevailing in large and small companies.

Contents of business ethics

'Ethics' can be understood in Islamic terms as *haya*, the state of respect and practice of good deeds. Islam provides a climate of work within which ethics is not separated from economics. Islamic ethical principles determine individual choices, based not only on profit maximization, but also on the maximization of social welfare (Pramanaik, 1994). So as a Muslim, ethics should be reflected on each Muslim's behavior in every aspect of his or her life, meaning that, we have to internalize the ethics. The internalization of ethics involves knowledge of ethical practices in a business organization; awareness of those ethical principles which are to be transferred and internalized, expertise in the internalization of ethics, and knowledge of relevant laws (Rizk, 2008). The internalization of Islamic ethical practices strengthens certain qualities; such as honesty, trust, solidarity, loyalty and flexibility. Accordingly, when Arabs internalized the principles of Islam, that strengthened cooperation among themselves and their achievements were great at that time. Rahman (1996) focused on Islamic basic ethical principles in the work place. According to him "One aspect is to recruit those who are most likely to have values and virtues. This dimension requires a stringent screening mechanism. Another aspect consists of continual on-the-job-education in the aforementioned values and virtues. One incentive mechanism is to keep an employee well-paid; another is to appoint an employee on a probationary basis, until values and virtues in question have been internalized" (Rahman, 1996).

Morals can either be classified as secular or religious. Secular morality tries to establish a moral system that is independent of God and religious faiths. In terms of motives for morality, various explanations have been given. One explanation is that people are ethical in pursuit of happiness or perfection. Another suggests that pressure by political power or social means forces people to follow a certain code of conduct. Yet another explanation is that a feeling of duty makes people moral. As for religious morality, it is derived from the revealed knowledge sent down by God to people through His messengers (Prophets) throughout the ages. Religious morality is fundamentally based on two things: first is the belief in God as the Creator of the universe, and second is the belief in the Hereafter. One thing that should be noted is that religious morality is not uniform across religions and it significantly differs among world religions, so the fundamentals of religious morality are not the same for all religions. That is why the ethical theory of relativism says that moral and ethical principles are not same between societies and religions (Pheng and Detta, 2009). Moral principles can vary from one society to another society. For example, in Muslim society taking interest on loan given to people is prohibited (Al-Quran, Sura Baqara, 2:175), but it is not prohibited in non-Muslim societies.

Business Ethics can guide the managers and executives of a business organization in the right direction. It increases the reputation of the business organization, ensures its continuous development and helps to achieve customer satisfaction. The possible contents of business ethics are wide and varied. Some of them might be universally accepted and some might not be universally recognized as business ethics. However, all of them can positively impact the progress of the business organization. The possible contents of business ethics are:

i) Speaking the truth about quality, quantity and ingredients in the product;

Islamic law (*Shariah*) orders all human kind including the Muslims to speak the truth all the time including in business. In this regard Al-Quran narrates in Surah Al Maidah (Sura No. 5, verse 119) that in the Day of *Qiamah* (the Last Day of this world) Allah (God) will say to all human beings: "This is a day on which the truthful will profit from their truth. For them there are Gardens, with rivers flowing beneath, it is their eternal home, Allah is well-pleased with them, and they will be pleased with Him and that will be the great salvation for human beings." This verse of Al-Quran clearly states the reward that will be given to the truthful men including honest and truthful businessmen.

Prophet Muhammad (peace be upon him) said in a *hadith* (a statement of Prophet Muhammad) that in the Day of *Qiamah*, Allah (God) will not talk, look at and pardon those sellers (of goods) who falsely swear about the quality of their products so that buyers will buy a large quantity of their goods. (Sahih Muslim Hadith Book). This *hadith* clearly prohibits swearing falsely to the customers about the quality of the product a businessman is selling. In another *hadith* Prophet Muhammad said, "The truthful businessmen will remain with prophets, pious men and martyrs in the Day of *Qiamah"*. (Sahih Tirmidhi Hadith Book).

In another *hadith,* Prophet Muhammad was asked about great sins and he said: The following are acts of great sin; (a) to join others in worship with Allah; (b) to be undutiful to one's parents; (c) to kill a person (without good reason and without any sanction from court of law); and (d) to give false witness against any person. (Sahih Bukhari Hadith Book, Vol. 3, Hadith No. 821). We can emphasize on point (d) of this hadith which says that it is a great sin to give false witness against any person. In business transactions, disputes may arise and a person may

give false witness for a businessman in regard to the quality, quantity or the delivery date of the goods. Giving such false evidence in business is a great sin under Islamic law. It is also prohibited for a businessman to tell a lie to potential customers about the quality, quantity, size etc. of the products to be sold.

ii) It is not allowed in Islamic religion to exaggerate the size and quality of products.

In this regard the prophet Muhammad (peace and blessings be upon him) said that false swearing about the quality of products may increase sales temporarily, but Allah blots out blessing from the seller. (Sahih Bukhari Hadith Book). Businessmen frequently swear falsely about the quality of their products. Such a practice is very bad, it deceives the customers. Therefore, Islam has prohibited it.

iii) Not cheating customers by false or misleading information about the product.

One day prophet Muhammad (s.w.t) visited a village market (bazaar). He saw a seller selling wheat from a pile. He put his hand into the pile from top of it and felt moisture in the wheat. He asked the seller about the reason for the moisture. The seller replied that some of the grain was damaged by water and so he put it at the bottom of the pile so that customers could not see it. The Prophet said, "It is not allowed. You are cheating the customers. You should put the deteriorated grain on top of the pile so that customers can see it." Finally he said, "He who cheats customers and others is not among the true believers of Allah." (Sahih Tirmidhi Hadith Book)

iv) Not concealing the defect in the products;

It is prohibited in Islamic ethical teaching to conceal any defects in the goods which a seller is selling. In this regard Prophet Muhammad said: "It is not permissible to sell an article without disclosing defects in the goods nor it is permissible for any one to knowingly conceal defects in the goods." (Baihaqi Hadith Book). In another *hadith* Prophet said, "Sell the good and bad separately. He who deceives people, he is not among us (true Muslims)." (Sahih Muslim Hadith Book)

v) Giving correct weight and measurement while selling

Allah (God) says in *Sura* Al-Mutafiffin (*Sura* No. 83: Verses 1- 3) that "Woe to those who deal in fraud, those who when they have to receive by weight or measure from men, they exact full weight or measure; but when they have to give by weight or measure to men, they give less than due." In another verse in Al-Quran, Allah says: "Give correct measure whenever you measure, and weigh with a balance that is true; this is good for you and best in the end." (Quran, 17:35)

In *Sura* Al-Araf (*Sura* 7, verse 85), Allah says, "Give just measure and weight, do not withhold from the people the things that are their due, and do no mischief on the earth after it has been set in order. That will be best for you, if you have faith in Allah." So, this verse from the Holy Quran emphasizes honest business and providing correct weights and measures to customers.

In *Sura* Ar-Rahman (Verse 9) Allah orders mankind: "Establish weight with justice and fall not short in the balance." In another verse He also commands sellers "Give correct measure and correct weight in justice." (Al-Quran, 6:152).

vi) Becoming loyal on the owner of business and following his instructions;

Business agents including managers must be loyal to the owner of the business. They should conduct business honestly and for the benefit of the owner. They must not work for their personal interest while using their position as agent or director. They should not take bribes or commissions from others without the knowledge of the principal.

vii) Obeying the commands of managers and following their instructions;

It is the ethical duty of all sub-ordinate employees in a business enterprise to obey the commands of managers and to follow their instructions related to conducting business. This is crucial because for the smooth running of the business enterprises and to make a handsome profit in the business, the employees must be loyal to the managers and must cooperate with them with full commitment and skill. If this does not happen, the business cannot prosper.

viii) Managers should value and appreciate suggestions and good performance of executive and subordinate employees;

As the employees have duty to be loyal to the managers, similarly the managers have ethical duty to value and appreciate the good performance of executives and subordinate officers in the business enterprises. This is crucial because there must be excellent relations between the managers and the subordinate officers. The subordinate officers should not be treated in such a way that they feel they are not given proper attention and their opinions and suggestions are not properly valued and taken into consideration in making decision. Besides, the subordinate

officers sometimes know better than the managers on certain matters about what is good and what is bad for the business enterprises. So, managers should seek suggestions from subordinate officers.

ix) Managers should consult with the subordinate employees while making decision.

Islam emphasizes mutual consultation when making a decision. According to the teachings of al-Quran and *Sunnah*, leaders must consult followers when making a decision. Allah says in the Holy Quran, "They make decisions by mutual consultation" (*Surah* Ash-Shura, 42, verse 38). The prophet Muhammad always consulted with his companions before making a decision whether it was related to business, politics, state matter, war, international relation etc. After his death, the four rightly guided *Khalifas* (elected presidents) followed this consultation mechanism before making any important decisions related to state affairs during their reign from the middle of the 7th century to the 8th century A.D.

They also practiced this consultation policy in their family life to ensure good family relations among family members. However, leaders are not always bound to follow all the suggestions given by their subordinates if they think that other considerations are more important. Besides, certain confidential matters may not be shared with subordinate employees and managers may keep them secret. They can then decide on them and may ask the subordinate executives to implement them. So, after consultation, the managers can decide what decision would be in the business' best interest. This will encourage the subordinate employees to work hard and sincerely for the benefit of business organization.

x) Giving incentives and promotions to employees who work hard and sincerely for the business organization and provide innovative ideas for the betterment of the business and gaining competitive edge (advantage) over the competitors (Desjardins, 2009; Valesquez, 2009);

xi) Providing reasonable salary and other benefits to the employees'

The employees should be given a reasonable salary. Some of the employees perform very well in the business. They act sincerely and honestly. Managers should appreciate them, should promote them to higher position and should also increase their salary and allowances. Such a practice undoubtedly will be beneficial for the business enterprises (David, 1989, 1991; David and David, 2009; Lamb et al, 1984; Morden, 2004; Pettinger, 2007; Render 1992).

xii) Fixing minimum wage for different class of employees;

If we survey the wages in developing countries and even in some developed countries we will find that the lower level workers are given a much lower salary although they are doing very hard work and their work is very significant for productivity in business and in the GDP growth of the country (Desjardins, 2009; Valesquez, 2009).

xiii) Providing healthy and safe environment for the employees in the workplace;

Some work places are very unhealthy for employees. So, managers must take care of those matters and must follow the national law to improve health and safety (De Gorge, 2010; Ghillyer, 2010).

xv) Providing medical treatment facilities and accident benefits in the workplace.

We may have seen that some workplaces are dangerous for the employees to work. They may contact contagious diseases due workplace conditions or due to the nature of the work. The work might be very risky for physical safety and they may be involved in accidents and suffer physical injury including death. Employers should have compulsory health insurance for employees in such work places (Lawrence, 2010; Brenkert, 2010).

xiv) Behaving well with customers. The employees should try to smile while talking and dealing with customers. Good behavior and good manner can conquer the heart of customers which eventually increase sell. (Stanwick, P.A., 2009; Beauchamp et al, 2009; Mukherjee, 2009; Schemerhorn, 2009).

xv) Maximizing the profit of business organization whilst complying with honesty, truthfulness and fairness in business activities (Tirmidi hadith book);

xvi) Maintaining corporate social responsibility, such as protecting the environment, providing financial assistance in overcoming national loss due to natural disaster, such as earthquake, cyclone, tsunami, war, pandemic disease etc (Fukukawa, 2010; Malin, 2010).

xvii) Providing proper and complete labeling on the product or its package. The label should include all the ingredients the product contains, the price and other relevant information [Consumer Protection Act 2006 (Bangladesh); Consumer Protection Act 1999 (Malaysia)].

This list of business ethics is not exhaustive. There may have many more business ethics which the business organizations and their employees should follow.

Ethics and external customers

External customers are not a part of an organization, but they greatly influence the organization's activities. External customers can be defined as the ones who purchase, use and influence the sale of products or services of a company. Perception of external customers is very important to the organization. They perceive the organization's ethical value is a significant image in the business world. Investors may decide to invest due to the reputation and ethical behavior of the company in the society (Holme, 2008). Consultants have found this niche and now scan and index the ethical behavior and principles of major international firms. This is a service relied upon by many financing firms when choosing a particular company in which to invest (Lindfelt, 2004).

So, it is a necessity to implement ethical practices in the organization to sustain in this global market. Clear ethical values create trust in the company, both internally and externally. Besides, trust is a two way street and also suppliers will be looking to supply to organizations that they can trust (Holme, 2008). Thus, the higher the level of trust that a company can build with the suppliers, the better the relationship and the better the business reputation that can be established. The interest in business ethics, corporate governance, sustainable business practice, and integrity has grown markedly in the past decades (Waddock et al., 2002). As a number of unethical business practices have been reported in newspapers and these scandals are reducing the confidence level of not only the shareholder but also other stakeholders; ethical practices have become the most significant solution to the problem. Ethical practices help organizations create values in business practices. That value helps organizations to develop relations with different types of institutional actors.

Ethics and internal customers

'Internal customers' means the employees of the organization: for example, employees from other departments are considered as internal customers, they break down departmental barriers. Fundamentally, an internal customer is anyone we count on or rely upon to complete a task or a function or to provide us with information so that we can get our job done, and anyone who counts on us to complete a task or function or to provide them with information so that they can get their job done. Employee satisfaction is one of the key elements to be a successful organization in the modern market. Job satisfaction is a crucial element in the business success of organizations and in the provision of quality service to customers (Whitehead, 1998).

Employee dissatisfaction leads to employee turnover, absenteeism, and affects employee motivation which in turn affects the quality of the work. Organizational ethics can help to enhance job satisfaction and organizational commitment, which can in turn reduce absenteeism and turnover (Hian and Boo, 2004). It is not only the stakeholders who expect companies to pay greater attention to norms, values, and principles but companies themselves are also acknowledging the importance of responsible business practices (Waddock et al., 2002). Employees look more to the broader organizational environment than to their particular role in attributing their satisfaction to their job (Leigh et al., 1988). Ethical values would suggest something much more than a legal minimum, the management behaviors would be more subtle than those required by the law. Employees who feel a strong alignment with the organization's values and know that they are supported can react with strong motivation and performance which is crucial to customer approval (Holme, 2008).

Implementation of ethics in business organizations

The code of ethics can demonstrate and reinforce the top management's support for ethical behavior and help develop a favorable ethical climate and culture in the organization and to have the intended effects. It is also important that the code of ethics be communicated, monitored and enforced in business organizations (Hian and Boo, 2004). It is crucial that management shows a dedication to, and materialize the code of ethics. The enforcement of a code of ethics is positively related to show how important employees perceive the role of ethics and social responsibility in achieving long-term organizational effectiveness (Vitell et al., 2003). Favorable organizational ethics produce constructive organizational outcomes.

An organization can embrace an organizational code of ethics by setting down the ethical philosophy, and rules of conduct and practices. The code can enhance corporate reputation and brand image, signal to internal and external parties that the organization is committed to ethical behavior, create a cohesive corporate culture, and guide and influence behavior within the organization (Carasco and Singh, 2003). Besides, an organization may appoint ethics officers to organize employee training programs in ethics. Such programs can provide an effective means of setting and communicating expectations among employees about their actions and behavior. However, top management support can play a major role in ethics training and enforcement of ethical behavior and standards. Likewise, the association between ethical behavior and career success can be incorporated into the corporate culture, which usually encompasses the ways work and authority are organized, the ways people are rewarded and controlled, as well as organizational features such as customs, taboos, company slogans, heroes and social rituals (Brickley et al.,

2002). Joyner and Payne (2002) affirmed that an organization can integrate ethics into the normal channels of strategic decision-making and train managers in decision-making skills that incorporate ethical principles and values.

Ethics is concerned with moral obligation, responsibility, and social justice, whereas self consciousness refers to personal awareness abut something. In a competitive environment, companies are faced with making decisions that often border on illegal or unethical behavior (Gayton, 2008). Most of the cases of unethical behavior appear as the main culprit for company's business development because employee's personal benefit works against it which is unethically obtained. In business ethics there is always a question as to the nature of the actor who bears responsibility (Fisscher and Nijhof, 2005). If the responsible person becomes unethical, it affects the whole system.

It is crucial to implement business ethics in an organization. If the ethics are not implemented not only the customers and other stakeholders will be affected but also the business organization itself will be affected. For resorting to unethical practice, the organization's reputation and good image will be damaged and it will lose its customers. So, the issue is how business ethics can be properly implemented.

Before we discuss the implementation process of business ethics, we need to discuss the need to compile the contents of business ethics into a code of ethics. The issue is: Who will prepare the code of business ethics? There are possible two ways of producing the ethics code; firstly, the government of each country may take the initiative to compile business ethics and put them together in a code of ethics and then require business organizations to implement the code. Secondly, the government may ask the associations of business organizations in a country to prepare a code of business ethics and implement it within their organizations. However, if the code of ethics is prepared by the association of business organizations, it should get approval from the government.

Now, we can discuss the possible ways of implementation of the code of business ethics in business organizations. As it is ethical code, it can not be implemented by bringing legal action in court against the defaulting business organization. However, if the government legislates the code of business ethics in Parliament and provides penalty provisions in it for its implementation, then the code can be implemented by bringing legal action in court. That is the best way to implement the code of ethics. However, some of the ethical contents might not be implemented by force or legal action; they should be left to the business organizations for voluntary implementation. Some important ethical contents have already been made law in different legislations. So, the code of ethics can be implemented by taking legal action in court or by referring to special tribunals or to arbitration process. In that case, the code of ethics may provide both civil and criminal remedy to the affected party. A criminal penalty can only be implemented by the government but a civil remedy can be claimed by the affected stakeholders including customers.

Another way to implement the ethical code is to leave it to organizations to implementation it. Managers will implement the code of ethics in the organization and will monitor whether it is properly being implemented. The organizations can appoint trained ethics officers who will organize training programs on the implementation of the ethical code. The ethics training program can be held twice a year but all the employees cannot attend at the same time. Employees will be selected for the training by turn. So, training groups can be prepared among the employees who will be trained in turn. The managers must monitor regularly whether the code of ethics is being implemented and complied with by each and every employee from top level to the bottom in ranking of the employees in the organization.

Bixler (2002) explains the importance of organizational learning as follows:

"Organizational learning must be addressed with approaches such as increasing internal communications, promoting cross-functional teams and creating a learning community. Learning is an integral part of knowledge management. In this context, learning can be described as the acquisition of knowledge or a skill through study, experience or instruction. Enterprises must recognize that people operate and communicate through learning that includes the social processes of collaborating, sharing knowledge and building on each other's ideas. Managers must recognize that knowledge resides in people, and knowledge creation occurs in the process of social interaction and learning."

When businesses downsize, the remaining staff can do nothing but 'muddle through', knowledge is lost despite a company's best efforts to retain staff, but the market notices that lay-offs may indicate a deeper issue than merely cost cutting (Gayton, 2008). Organization seems a team, procedures are like teamwork. Therefore, through the activities, ethical learning can be a good method for employees to have practice in behaving ethically.

Another way of implementing of the code of ethics is by way of regular monitoring by the government of the concerned country. For the smooth running of the monitoring activity, government can set up a monitoring department. The officers of this department will be responsible for regular monitoring on the business organizations for implementation of the code of business ethics.

We cannot leave the implementation of ethics to the business organization alone, because some of the contents of ethics may conflict with the interest of the business organizations or business organizations may think of bypassing the ethics to maximize profit in the organization. Therefore, business organizations will be asked to monitor the implementation of the code of business ethics, and at the same time the concerned government department will also intensify monitoring of the implementation of the code of business ethics. In this way we may make sure the code of business ethics is properly implemented.

Business Ethical Model

Business ethical model 1 in the Appendix explains that every business organization must have a code of business ethics and the code must specify the contents of ethics. These ethical contents are crucial for every business organization, because the implementation and practice of the ethical contents can ensure customer satisfaction and loyalty. When customers are satisfied, they will buy more and more products from the business organization and as a result the profit will increase. Therefore, it is very important to have a code of business ethics and to implement it in the business organization properly. Thus, the proper implementation of business ethics can guarantee customer satisfaction and profitability in the business.

In business ethical model 2 in the Appendix, we can see, in a company or organization ethical practice can be maintained if there is either strong code of ethics which is strongly applied, or the value of Islamic work ethics is well concerned among employees. For a bureaucratic organization, the strong code of ethics is accelerated from the top management that creates an ethical workplace environment. However, ethical practice generates customer satisfaction for internal customers as well as external customers. Internal customers are the employees of the organization such as employees from other departments who are considered as internal customers and principally they break down departmental barriers. If internal customers are happy and satisfied with the ethical practice within the organization, they will think that they are treated equally and that there is no discrimination in the organization. Fundamentally, this type of thinking and feelings ensure the proper rights of the employees and finally they feel satisfied. Unlike internal customers, external customers may not be a part of the organization, but they are affected by the organization's actions. They can be defined as those who purchase, use and influence the sale of the product or service.

The perception of external customers is very important for the organization in the sense that how they perceive the organization is strongly influenced by the organization's ethical values whereby ethical value is a significant part of company's image in the business world. By the same way, once they are satisfied with the ethical practice by the organization itself, they become satisfied. There are a lot of things that affect customer satisfaction but ethical practice is considered as vital for customer satisfaction. Actually, internal and external customer satisfaction makes overall customer satisfaction which produces customer loyalty. Once customers become loyal, they are considered as permanent customers of the organization. In reality, customers are 'the king' for a company or organization. An increase in customers boosts sales and revenue, and more revenue means more profit. Therefore, ethical practice ultimately generates profitability and constructive organization performance.

Conclusion and recommendation

This paper has identified that ethical practices and the proper implementation of ethical practices are very important for organizational goodwill. It is also noticeable that an ethical organization's employees are more satisfied and loyal to the company than those of an unethical one. With strong ethical enforcement, companies can build long term profitable relationships with their stakeholders. On the other hand, a good number of cases of unethical practices are being reported each year all over the world. The reason might be the wrong implementation and communication of ethical standards. By nature, human beings are greedy. So it is not possible to completely remove unethical practices. But it can be minimized through continuous reminders. In the present business atmosphere, there are some organizations that are ethical and in some organizations ethics are not practiced as rationally expected. Despite this type of mixed attitude towards business ethics, it can be said that ethical trend will change an organization's internal and external reputation. In future, ethical considerations will move from individual awareness to organizational practice for the purpose of better business strategy.

It is significant to have a code of business ethics for each and every company and the corporate managers must adopt appropriate means to implement the contents of that code of business ethics. There should have adequate emphasis on the implementation of the code of business ethics in business organizations. To have a proper code of

business ethics and to undertake effective method of implementing business ethics can ensure success in the business organization as well as to the society where it operates. Proper implementation of business ethics can ensure satisfaction of all stakeholders of the business organization. It is the ultimate desire of all stakeholders of a business organization that it will implement its code of business ethics in the true sense. Future research may be conducted in this area as this is a significant area of business environment.

References

Beauchamp, T.L., Bowie, N.E. and Arnold, D.G. (2009). *Ethical Theory and Business*, Australia, New Jersy: Pearson, Prentice Hall, eighth edition.

Bixler, C. (2002). "Applying the four pillars of knowledge management," *KM World*, 11(1): 10-20.

Blumberg, P.I. (1970). "Corporate Responsibility and the Social Crisis", *Boston University Law Review,* 50: 157-175.

Boone, Louis E and Kurtz, David L. (2005). *Contemporary Business*, UK: Thomson, SouthWestern Publisher.

Brenkert, G.G. (2010). *The Oxford Handbook on Business Ethics*, Oxford: Oxford University Press.

Brenkert, G.G. (2010). *Marketing Ethics*, UK: Blackwell Publishers.

Brickley, J.A., Clifford, W.S. Jr and Zimmerman, J.L. (2002). "Business ethics and organizational architecture," *Journal of Banking and Finance*, 26: 1821-35.

Carasco, E.F. and Singh, J.B. (2003). "The content and focus of the codes of ethics of the world's largest transnational corporations", Business and Society Review, Vol. 108, pp. 71-94.

Carroll, A.B. (1991). *The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders*, London: Business Horizons.

Companies Commission Malaysia. (2008). *Code of Ethics for Company Directors,* Kuala Lumpur, Malaysia: Companies Commission Malaysia. See, http://www.ssm.com.my/en/services_code.php

Consume Protection Act 2006 (Bangladesh)

Consumer Protection Act 1999 (Malaysia)

Darwish, A. Yousef. (1999). "Islamic work ethic: A moderator between organizational commitment and job satisfaction in a cross-cultural context," *Personnel Review*, 30(2): 152-169.

David, F. (1989). *Strategic management*. Columbus: Merrill Publishing Company.

David, F. R. (1991). *Strategic Management*, New York: Merrill.

David, F.R. and David, R.F. (2009), *Strategic Management: Concepts and Cases*, London: Pearson Education.

De Gorge, R.T. (2010). *Business ethics*, Upper Saddle River, N.J.: Pearson, Prentice Hall.

Desjardins, Josheph. (2009). *An Introduction to Business Ethics*, London: McGraw Hill.

Ebrahim, M.S. (2008). "The financial crisis: comments from Islamic perspectives," *IIUM Journal of Economics and Management* 16(2): 111-118.

Fisscher, O. and Nijhof, A. (2005). "Implications of business ethics for quality management". *The TQM Magazine*, 17(2): 150-160.

Freeman, R.E. and Gilbert, D.E. (1988). *Corporate Strategy and the Search for Ethics*, UK: Prentice Hall.

Fukukawa, Kyoko. 2010. *Corporate social responsibility in Asia*, New York: Routledge.

Garrett, T. (1970). *Business Ethics*, London: Prentice Hall.

Gayton, M. C. (2008). "Business ethics, restrictions on employment and knowledge management," *The Journal of Information and Knowledge Management Systems*, 38(2): 174-183.

Ghillyer, Andrew. (2010). *Business ethics: a real world approach*, Boston: McGraw-Hill Higher Education.

Hian, C. K. and Elfred H.Y. Boo. (2004). "Organizational ethics and employee satisfaction and commitment," *Management Decision*, 42(5): 677-693.

Holme C. (2008), "Business ethics – Part Two: Making it part of your strategy," *Industrial and commercial training* vol. 40 NO. 6, 2008, pp. 248-252

Joyner, B.E. and Payne, D. (2002), "Evolution and implementation: a study of values, business ethics and corporate social responsibility", *Journal of Business Ethics,* Vol. 41, pp. 297-311.

Laczniak, G. 1983, "Business Ethics: A Manager's Primer", Business Magazine, January-March, 23-29.

Lamb, Rober & Boyden. (1984). *Competitive strategic management,* Englewood Cliffs, NJ: Prentice-Hall.

Lawrence, A.T. (2010). *Business and society: Stakeholders, ethics and public policy*, New York: McGraw-Hill, IRWIN.

Lindfelt, L. L. (2004), Ethics as Strategy in an Industrial Firm? A Study on the Stora Enso Business Network, Meddelanden fra°n Ekonomisk-Statsvetenskapliga Fakulteten, Fo¨retagsekonomiska institutionen, Series A: 540, A ° bo Akademis tryckeri.

Leigh, J.H., Lucas, G.H. and Woodman, R.W. (1988), "Effects of perceived organizational factors on role stress-job attitude relationships", Journal of Management, Vol. 14, pp. 41-58.

Machan, T.R. (2009). "Stakeholder Vs. Shareholder theory of ethics of corporate management", *International Journal of Economics and Business Research*, 1(1), 12-20.

Malin, C.A. (2010). *Corporate social responsibility: a case study approach*, Northampton, MA: Edward Elgar pub.

Morden, T. (2004), *Principles of Management*, London: Ashgate Pulishing.

Mukherjee, K. (2009). *Principles of Management and Organizational Behaviour*, New Delhi: Tata McGraw Hill.

Pettinger, R. (2007). *Introduction to Management*, London: Palgrave Macmillan.

Pheng and Detta. (2009). *Business Law*, Oxford, New York: Oxford University Press.

Pramanaik, A. (1994), "The role of family as an institution in materializing the ethico-economic aspects of human fulfillment", *Humanomics*, Vol. 10 No. 3, pp. 85-110.

Rahman, A.R. (1996), "Administrative responsibility: an Islamic perspective", *American Journal of Islamic Social Sciences*, Vol. 3 No. 4, pp. 497-517.

Render, B. and Stair, R.M. (1992). *Introduction to Management Science*, Boston, MA: Allyn and Bacon.

Rizk, R. R. (2008). "Back to basics: an Islamic perspective on business and work ethics", *Social Responsibility Journal,* 4(2): 246-254.

Schemerhorn, J.R. (2009). *Introduction to Management*, London: John Wiley and Sons.

Sealy, L.S. (1987). "Directors' wider responsibilities─ problems: conceptual practical and procedural", *Monash University Law Review*, 13, 164-180.

Sealy, L.S., (2001), *Cases and Materials in Company Law*, UK: Butterworths, Seventh edition.

Siddiqi, M.N. (2008). "The current financial crisis and Islamic Economics," *IIUM Journal of Economics and Management*, 16(2):125-132.

Solomon, R.C. (1984). *Morality and the Good Life,* UK: Peason.

Stanwick, P.A. (2009). *Understanding Business Ethics*, Canada, London: Prentice Hall.

Stodder, G.S. (1998). "Goodwill Hunting," *Entrepreneur*, 7: 118-121.

Velasquez, M.G. (2009). *Business Ethics: Concepts and Cases*, New York: Prentice Hall.

Vitell, S.J., Paolillo, G.P. and Thomas, J.L. (2003). "The perceived role of ethics and social responsibility: a study of marketing professionals," *Business Ethics Quarterly*, 13: 63-86.

Waddock, S. A., Bodwell, C. and Graves. S.B. (2002). "Responsibility: The New Business Imperative", *The Academy of Management Executive*, 132-147

Weihrich, H. and Koontz H. (1994). *Management: A Global Perspective*, New York: Prentice Hall.

Whitehead, M. (1998). "Employee happiness levels impact on the bottom line." *People Management*, 4:14- 29.

Notes

Appendix

Business Ethical Model 1

Code of Business Ethics

↓

Necessity of the Code of Business

↓

Implementation in the Code of Business Ethics

↓

Customer Satisfaction and Profitability
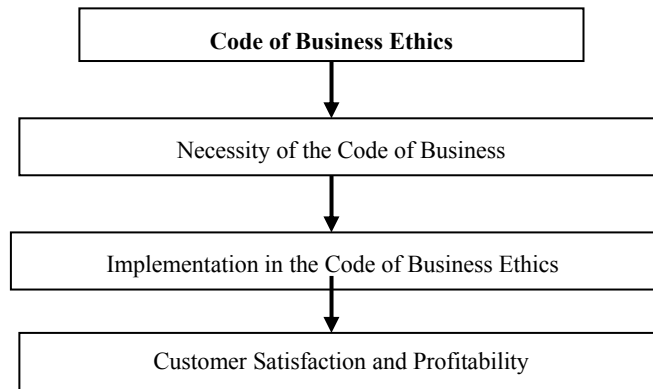
Business Ethical Model 2

Ethical Practice, Customer Satisfaction and Customer Loyalty
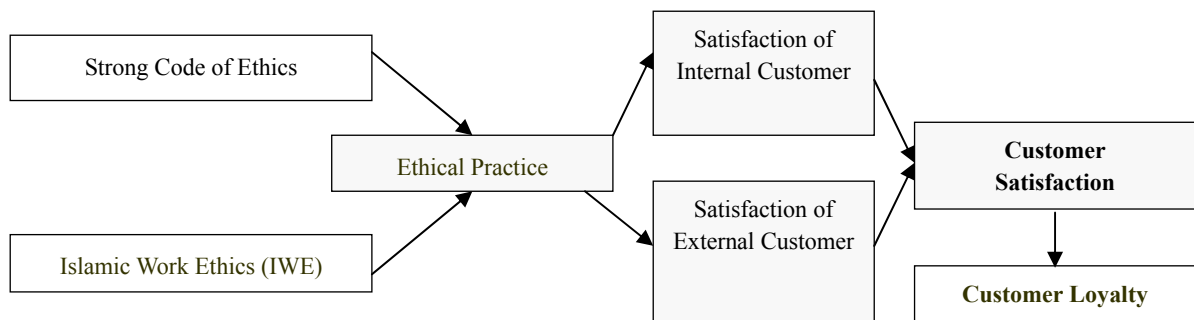
Interdependence of FDI between India and ASEAN- 5: Evidence from Causality Approach

Rudra P. Pradhan

Vinod Gupta School of Management

Indian Institute of Technology Kharagpur, India

Email: rudrap@vgsom.iitkgp.ernet.in

Abstract

The paper explores the interdependence of FDI between India and ASEAN-5 countries namely, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at the individual and group level. The empirical analysis is based on time series cointegration and causality test over the period 1970-2008. The findings suggest the presence of interdependence of FDI between India and ASEAN-5 countries. The policy implication of this study is that with the increasing interest of economic integration around the globe, especially with India-ASEAN Regional Trade and Investment Area (RTIA), the existence of interdependence of FDI between member countries is an important feature for maintaining growth sustainability in the Asian economy.

Keywords: Economic growth, Defense spending, Panel cointegration

1. Introduction

The effect of regional integration on trade flows and foreign direct investment flows are very common in international finance, particularly during the current globalization era. The specialty of regional integration is that it not only creates interdependencies between the countries within the system but also creates interdependencies with other countries in the world. The objective is to increase foreign direct investment (FDI) inflows and trade flows among the member countries. For instance, the Association of Southeast Asian Nations (ASEAN) Free Trade Agreement (AFTA) was designed as a means to increase FDI inflows and to stimulate interregional trade in the Southeast Asia (Kreinin et al., 2008). Similarly, India-ASEAN Regional Trade and Investment Area (RTIA) is designed to stimulate FDI and trade flows among its member countries (Karmakar, 2005). The question is very obvious here how far these countries are very interdependent to each other, particularly on FDI flows and trade flows. The objective of this paper is to study the interdependencies of FDI inflows between India and ASEAN-5 countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at the individual country level and as a whole.

The foreign direct investment (FDI) is one of the fundamental instruments of economic growth. The importance of FDI is, in fact, much higher in the Asian economy because of their inability to generate internal savings in response to their investment needs. One of the most cited reasons for the high economic growth in Asia in the recent era is due to the inflows of FDI in the region. It is one of the most effective ways by which Asian countries are integrated with rest of the world and vice versa. It promotes economic growth by number of ways: (1) increasing the volume of investment and its efficiency; (2) generating technological diffusion from the developed countries to the recipient country; (3) augmenting stock of knowledge in the host country through labour training, skill acquisition and diffusion and the introduction of alternative management practices and organizational arrangements (Vadlamannati et al., 2009; Pradhan, 2006; Li and Liu, 2005; Okamoto and Sjobolm, 2005; Hermes and Lensink, 2003; Zhang and Felmingham, 2002; De Mello, 1999; Borensztein et al., 1998; Balasubramanyam et al., 1996; Chao and Yu, 1994; Grossman and Helpman, 1991). Both India and ASEAN-5 has undergone a progressive economic growth in the last decade and referred as the most dynamic economies in the world (Zhang and Ow, 1996). They share a vital cohesion where both have high dependency on FDI as a tool of export-led growth.

India has recorded immense net inflow of FDI that increased from average annually increment of US$ 6.9 billion from 1990 to over US$ 12.8 billion between 2000- 2008. The FDI inflow into India is showing a tremendous upward trend from 1992 onwards and reached US$ 41.5 billion in 2008. On the contrary, the performance of FDI inflows into ASEAN-5 countries is also very favorable during the recent era, particularly in the 1990s. The region has successfully attracted high volume of FDI since early 1990s, where it is recorded US$ 66.7 billion in 1996 but the volume declined to US$ 59.1 billion in 1997 due to Asian Financial Crisis. Nevertheless, the FDI inflows into ASEAN-5 remained favorable with progressive performance and reached US$ 106.7 billion in 2008 (see Figure 1). Although ASEAN-5 and India become rivalry from the perspective of FDI recipient in the region,

there is a significant bilateral relationship exist between India and ASEAN-5 (e. g. RTIA). Therefore, the paper likes to examine whether the FDI inflows of India is affected by the FDI inflows of ASEAN-5 countries. The rest of the paper is organized into four different sections. Section II presents literature review; Section III describes the econometric modeling and data descriptions; Section IV discusses the empirical results; and the final section offers the concluding remarks.

2. Literature Review

The following section will introduce the theoretical background, and introduce the empirical model that is estimated in this analysis.

Foreign Direct Investment (FDI) plays very key role in development. Its role is manifold and can be analyzed under two different conditions: first, the determinants of FDI on development; second, causality between FDI and development. In the first case, the role of FDI is country specific and can be positive, negative or insignificant, depending on the economic, institutional and technological conditions in the recipient economy (Bhat et al., 2004; Kohpaiboon, 2006). The second case is, however, very diverging, particularly with reference to direction of causality. The divergent is due to time periods, country specifications and partly due to methodological differences. We have literature on both these aspects.

FDI has been widely recognized as a growth-enhancing factor in the host country. It not only a source of capital but also a medium for acquiring skills, technology, organizational and managerial practices and access to markets (Noorbakhsh et al., 2001). FDI introduces advanced technology and that can enhance the technological capability of the host country and hence, generating sustainable economic growth. Most interestingly, the technological benefit is not limited to locally affiliated firms but can also spread to non-affiliated ones. The latter benefit is usually called as technology spillover (Kugler, 2006; Moran, 2001). The process is however not automatic but depends upon country specific factors and policy environment. Moreover, the flows of FDI could be very positive, if there is integration of countries across the world. According to Feenstra and Markusen (1994), FDI determines growth through incorporation of inputs and technological absorptive in the production process. In the first case, output growth can result from the use of a wider range of intermediate goods in FDI related manufacturing. In the second case, FDI is expected to be a potential source of productivity gains via spillovers effects.

Balasubramanyan et al. (1996) find significant positive association between FDI and economic growth and suggest that the above relationship is more holistic in the export promotion policy (EPP) in contrast to import substitution policy (ISP) of a country. In other words, the effect of FDI on economic growth is more attractive under openness in contrast to trade restrictions in the host country. This finding is also similar with the findings of Brecher and Findlay (1983), Bhagwati (1994) and Kokko et al. (2001). The UNCTAD (1999) finds both positive and negative association between FDI and growth, depending upon the incorporation of various variables like infrastructure, market integration, etc. in the model. According to Borensztein et al. (1998), the difference in the technological absorptive ability also makes the variation between FDI and growth across the countries. In their study, human capital plays a very key role in attracting FDI inflows to a host country, as it determines the ability to adopt the foreign technology. The larger the endowment of human capital, the higher is the economic growth via FDI inflows (and vice versa). The study of Xu (2000) ensures that technology transfer provided by US multinationals contributes more productivity growth in the developed countries in contrast to developing countries. This is because most of the developing countries do not have the threshold requirement of human capital and hence, they find difficulty to benefit from inward FDI. That means country must have minimum threshold stock of human capital in order to gain positive effects of FDI. Olofsdotter (1998) finds a positive association between FDI and economic growth and suggests that the association will be much stronger, if the country specific has a higher level of institutional capability and the bureaucratic efficiency.

According to Bengoa and Sanchez-Robles (2003), FDI has a positive association with economic growth, provided the host country must have human capital, economic stability and liberalized markets in order to benefit from long-term FDI inflows. The study by Durham (2004) finds a negative association between FDI and economic growth; but suggests that the effects of FDI are contingent on the absorptive capability of host countries. Bende-Nabende et al. (2003) find significant positive association between FDI and economic growth in the country like Philippines and Thailand and negative association between the two in the country like Japan and Taiwan. This is mostly due to more absorptive capabilities of Japan and Taiwan in contrast to Philippines and Thailand. The negative association between FDI and economic growth also find by Germidis (1977), Mansfield and Romeo (1980), Haddad and Harrison (1993), and Aitken and Harrison (1999).

The causality approach, on the other hand, mostly focuses on the possibility of endogeneity of the variables. The issue could be bilateral causality or multilateral causality. But our focus is limited to bidirectional causality only. In the below, we highlight few selected studies on the above aspects. Kholdy (1995), applying Granger causality test, finds no causality between the FDI and economic growth but suggests that FDI generates limited efficiency spillovers and an important vehicle for technology transfer. Zhang (1999a), applying causality test, finds the causality between FDI and economic growth in the long run in the country like China, Hong Kong, Indonesia, Japan and Taiwan and in the short run in Singapore. In another study, Zhang (1999b), applying cointegration and error correction models, finds the existence of both a long-run equilibrium between FDI and Economic growth and bidirectional causality between the two in Chinese economy. This finding is also consistent with the findings of Nair-Reichert and Weinhold (2001). Chakrobarty and Basu (2002), applying cointegration and error correction modeling technique, finds a uni- directional causality between FDI and economic growth and that is from economic growth to FDI only. Choe (2003) detects bi- directional causality between FDI and economic growth and suggest that the effect is more from economic growth to FDI. Bhat et al. (2004), applying Granger causality test, find an independent association between FDI and economic growth in the Indian economy. So the relationship between FDI and growth is very controversial. It varies from country to country and even within a country with different time periods (See Hermes and Lensink, 2003; Li and Liu, 2005).

In short, the above literature reflects various aspects of FDI and its integration with growth. The literature is, however, very limited with respect to interdependence of FDI inflows among the various countries. The resent study is, therefore, very keen to investigate the same. In specific, the aim of this paper is to investigate the interdependence of FDI inflows in India with ASEAN-5 by applying the causality approach. The detail description of this approach is given below.

3. Modelling and Database

The study of interdependence between FDI of India and FDI of ASEAN-5 is examined in three steps: test of stationarity, test of cointegration and test of causality. The details of these three tests are described below.

3.1. Test of Stationarity

The study uses Augmented Dickey Fuller (Dickey and Fuller, 1981; 1986) test to examine the stationarity of the variables. The structure starts with the following time series model.

$$\Delta Z_t = \alpha + \beta Z_{t-i} + \sum_{j=1}^{n} \gamma_t \Delta Z_{t-j} + \varepsilon_t \qquad \text{………..……. (1)}$$

Where, ε_t is error term and the null hypothesis is to test whether β is equal to zero or not. Though the Augmented Dickey Fuller (ADF) test is very simple and frequent use in econometric analysis, it is not reliable in small samples, because of its poor size and power properties. That means ADF test can over-reject the null hypothesis when it is true and under reject it when it is false (see Dejong et al., 1992; Harris and Sollis, 2003). The study, therefore, uses Dickey Fuller Generalized Least Squares (DFGLS) test (Elliot et al., 1996) and Ng-Perron test (Ng and Perron, 2001) test to check the stationarity. DFGLS is an extension of ADF by de-trending. Assuming that we need to test the order of integration of the variable Z_t, the DFGLS de-trending test is based testing H_0: $\varphi = 0$ in the regression.

$$\Delta Z_t^d = \varphi_0 + \varphi_1 \Delta Z_{t-1}^d + \varphi_2 \Delta Z_{t-2}^d + \ldots\ldots\ldots + \varphi_{p-1} \Delta Z_{t-p+1}^d + \varepsilon_{i,t} \qquad \text{………..……. (2)}$$

Where, Z_t^d is the de-trended series. The null hypothesis of the test is that Z_t has a random walk trend, possibly with a drift, as follows:

$$Z_t^d = Z_t - \alpha - \beta t \qquad \text{………..……. (3)}$$

The DFGLS proposes two alternative hypotheses: (1) Z_t is stationary about a linear trend; (2) it is stationary with a (possibly) non-zero mean, but with no linear time trend.

For the first hypothesis, the test is performed by estimating the intercept and trend using the GLS technique. The estimation is performed by generating the following variables.

$$\overline{Z} = \left[Z_1 (1 - \overline{\alpha} L) Z_2, \ldots\ldots, (1 - \overline{\alpha} L) Z_T \right] \qquad \text{………..……. (4)}$$

$$\overline{W} = \left[W_1 (1 - \overline{\alpha} L) W_2, \ldots\ldots (1 - \overline{\alpha} L) W_T \right] \qquad \text{………..……. (5)}$$

$$W_t = (1, t)' \overline{\alpha} = 1 + \frac{\overline{c}}{T} \qquad \text{………..……. (6)}$$

Where T represents the number of observations for Z_t and $\bar{c}$ is fixed (see Elliot et al., 1996). The OLS is performed on the following equation:

$$\overline{Z} = \mu_0 \overline{W} + \mu_1 W_t + \varepsilon_t \qquad \text{………..……. (7)}$$

And the OLS estimators (μ_0 and μ_1) are utilized for the removal of trend from Z_t. The ADF test is then applied on the transformed variable by fitting the OLS regression.

$$\Delta Z_t^d = \alpha + \beta Z_{t-1}^d + \sum_{j=1}^{k} \gamma_j \Delta Z_{t-j}^d + \varepsilon_t \qquad \text{………..……. (8)}$$

Where, the null hypothesis is to test whether β is equal to zero or not.

Now for second hypothesis, we take $\bar{c} = -7$ in the equation of $\overline{\alpha}$ and then compute $\Delta Z_t^d = Z_t - \mu_0$.

The ADF regression is fitted on new transformed variables and then null hypothesis is to test whether β is equal to zero or not. In both the cases, the tabulated variable is provided by Elliot et al. (1996). Though the DFGLS test is very impressive with power gains, the simulation shows that the test exhibits strong size distortion.

The study, therefore, uses Ng and Perron unit root test to determine the order of integration. The test purposes four test statistics based on the lines of GLS de-trended data. The modelling structure of Ng and Perron unit root test are as follows:

$$k = \sum_{t=2}^{T} \left(D_{t-1}^d\right)^2 / T^2 \qquad \text{………..……. (9)}$$

While de-trended GLS tailored statistics are given by

$$MZ_a^d = \left[T^{-1}\left(D_T^d\right)^2 - f_0\right] / 2k \qquad \text{………..……. (10)}$$

$$MZ_t^d = MZ_a X MSB \qquad \text{………..……. (11)}$$

$$MSB^d = (k/f_0)^{0.5} \qquad \text{………..……. (12)}$$

$$MP_T^D = \left(\bar{c}^2 k - \bar{c} T^1\right)\left(D_T^d\right)^2 / f_0 \quad \text{if } x_t = \{1\} \text{ and}$$

$$MP_T^D = \left(\bar{c}^2 k + (1 - \bar{c} T^1)\right)\left(D_T^d\right)^2 / f_0 \quad \text{where } \bar{c} = \text{-7 if } x_t = \{1\} \text{ and } \bar{c} = \text{-13.5 if } x_t = \{1, t\}\text{………..……. (13)}$$

Like other tests, the null hypothesis of unit root cannot be rejected, if the test statistic is higher than critical value.

3.2. Cointegration Test

When the series becomes stationary at the first difference level, there is possibility of linear combinations between the variables. The test applies to examine the same is known as cointegration (Granger, 1988). Cointegration technique examines whether there exists a long run relationship among the set of integrated variables. Econometric literature, for both univariate and multivariate, has abundant techniques [Engle and Granger, 1987; Engle and Yoo, 1987; Phillips and Hansen, 1990; Johansen, 1988; Johansen and Juselius, 1990] that can examine the long run equilibrium relationship among different time series variables. The study, however, uses Johansen's technique to study the long run equilibrium. The detail of this technique is as follows:

Let X_t be a (n X 1) vector of variables with a sample of t. Assuming X_t follows I (1) process, identifying the number of cointegrating vector involves estimation of the vector error correction representation:

$$\Delta X_t = A_0 + \prod X_{t-p} + \sum_{i=1}^{p-1} A_i \Delta X_{t-i} + \varepsilon_t \qquad \text{………..……. (14)}$$

Where, vector ΔX_t and ΔX_{t-1} are I (1) representation. The long run equilibrium relationship among X_t is determined by the rank of Π (say r) is zero, then equation (3) can be transferred to a VAR model of pth order and the variables in level do not have any cointegrating relationship. If $0 < r < n$, then there are n X r matrices of α and β such that

$$\Pi = \alpha \beta' \qquad \text{………..……. (15)}$$

Where, both α and β are (n x r) matrices. The cointegrating vectors β have the property that $\beta'X_t$ is stationary [I (0)] even though X_t is non-stationary [I (1)]. Johansen likelihood ratio test looks for two statistics: trace statistics and maximum eigen value.

The likelihood ratio test statistic for the null hypothesis that there are at most r cointegrating vectors is the trace test and is computed as:

$$Trace = -T \sum_{i=r+1}^{n} Log\left(1-\hat{\lambda}_i\right)$$ …………..……. (16)

Where $\hat{\lambda}_{r+1}$, ….. $\hat{\lambda}_n$ are (n-r) smallest estimated eigen values. The likelihood ratio test statistic for the null hypothesis of r cointegrating vectors against the alternative of r + 1 cointegrating vectors is the maximum eigen value test and is given by

$$\lambda_{max} = -TLog\left(1-\hat{\lambda}_{r+1}\right)$$ …………..……. (17)

Here, the null hypothesis of r cointegrating vectors is tested against the alternative hypothesis of r +1 cointegrating vectors. Hence the null hypothesis r = 0 is tested against the alternative r ≤ 1, r =1 against the alternative r ≤ 2, and so forth. The critical values for boot trace and maximum eigen value statistics are reported in Osterwald- Lenum (1992). It is well known that the cointegartion tests are very sensitive to the choice of lag length. The AIC and SBC has been choosen for the same.

3.3. Granger Causality Test

When two variables are cointegrated, the Granger representation theorem suggests that there is possibility of causality between these variables at least in one direction. Engle and Granger (1987), however, cautioned that if the Granger causality test is conducted at first difference through VAR method than it will be misleading in the presence of cointegration. Hence, an inclusion of an additional variable to the VAR method such as an error correction would help us to capture the long run relationship. The detail structure of this VAR model is as follows:

$$\begin{bmatrix} \Delta INDI_t \\ \Delta INDO_t \\ \Delta MALA_t \\ \Delta PHIL_t \\ \Delta SING_t \\ \Delta THAI_t \end{bmatrix}_t = [\alpha_0] + \alpha_1 \begin{bmatrix} INDI_{t-1} \\ INDO_{t-1} \\ MALA_{t-1} \\ PHIL_{t-1} \\ SING_{t-1} \\ THAI_{t-1} \end{bmatrix} + \alpha_2 \begin{bmatrix} INDI_{t-2} \\ INDO_{t-2} \\ MALA_{t-2} \\ PHIL_{t-2} \\ SING_{t-2} \\ THAI_{t-2} \end{bmatrix} + \alpha_3 \begin{bmatrix} INDI_{t-3} \\ INDO_{t-3} \\ MALA_{t-3} \\ PHIL_{t-3} \\ SING_{t-3} \\ THAI_{t-3} \end{bmatrix} + \begin{bmatrix} \zeta_{INDI} \\ \zeta_{INDO} \\ \zeta_{MALA} \\ \zeta_{PHIL} \\ \zeta_{SING} \\ \zeta_{THAI} \end{bmatrix}$$. (18)

Where INDI stands for FDI inflows of India, INDO stands for FDI inflows of Indonesia, MALA stands for FDI inflows of Malaysia, PHIL stands for FDI inflows of Philippines, SING stands for FDI inflows of Singapore, THAI stands for FDI inflows of Thailand. The α_0 acts as an identity matrix. To test the causal relationship between FDI inflows of two countries, we adopt the modified WALD (MWALD) test proposed by Toda and Yamamoto (1995). The test starts with the FDI inflows between India and Indonesia and than can be generalized to rest of the countries. To test whether INDO FDI inflows does not Granger cause the INDI FDI (if k =2 and d_{max} =1), the null hypothesis is H$_0$: $\beta_{12}^1 = \beta_{12}^2 = 0$ where β_{12}^i are the coefficients of INDO$_{t-i}$ for i =1, 2… in the first equation of the system. The existence of the causality requires the rejection of the above null hypothesis and that requires the significance of the MWALD statistics for INDO$_{t-i}$. Similarly, the null hypothesis can be tested that INDI FDI does not Granger cause INDO FDI. For that, the null hypothesis is H$_0$: $\beta_{21}^1 = \beta_{21}^2 = 0$ where β_{21}^i are the coefficients of INDO$_{t-i}$ for i =1, 2… in the second equation of the system. The existence of the causality requires the rejection of the above null hypothesis and that requires the significance of the MWALD statistics for INDI$_{t-i}$. The above process can be generalized for the rest of the cases. The annual data of FDI inflows for India and ASEAN-5 countries over the period 1970-2008 are obtained from World Investment Report, UNCTAD, Washington. The data are used in normalized form and their descriptive statistics are reported in Table 1.

4. Results and Discussion

Before proceeding to undertake the empirical analysis to test for the interdependence of income, a simple correlation analysis is conducted. The positive correlation indicates that one country's FDI would increase the other country's FDI and the negative correlation indicates one country's FDI would decrease the other country's FDI. The results, presented in Table 1, indicate that there is positive association between India and ASEAN-5

except Indonesia. The positive correlation is, however, does not indicate the evidence of cointegration or causality between them. Therefore, we investigate the same by the help of cointegration and causality technique. The econometric analysis of this section starts with the stationarity of the time series data and that is the prime requirement for cointegration and causality test. Unit root test has applied to examine the stationarity property of the time series data. It is to be noted that a significant relationship only exists when the variables in the model are in the same order of integration. The estimated results of unit root tests (ADF, DFGLS and Ng-Perron) are reported in Table 2. The results indicate that the computed test statistics could not reject the null hypothesis of stationarity. This confirms that the time series variables are having unit root problems at the level data. That means the variables are non-stationary in their level data and suggests checking the stationarity at a higher order of differencing. However, once the first differences of the variables are considered, the null hypothesis of unit root is rejected at 5% significance level. This is exclusively true for India and ASEAN-5, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at individual level and group level. Overwhelmingly, all the testing procedures suggest the existence of unit root or non-stationarity in the level data but found stationary at the first difference. This confirms that the variables are integrated of order one [or I (1)].

Having confirmed the existence of unit roots for all the data series, the next step is to check possibility of long run equilibrium relationship between them. The Johansen's maximum likelihood cointegration test is applied for the same. The estimated results (λ_{tra} and λ_{max}) are reported in Table 3 at the individual country level and Table 4 at the group level. The null hypothesis of no cointegrating vector in favour of at least one cointegrating vector is rejected at 5% significance level. The rejection of null hypothesis of no cointegration implies that the countries do not drift apart and share at least a common stochastic trend in the long run. This confirms that there is cointegration, indicating a significant long run relationship between FDI of India and FDI of ASEAN-5. Overall, the results indicate that the variables share a long run co-movement that is bounded by their long run equilibrium relationship.

The cointegrating test is, however, does not provide an indication of causality between India and ASEAN-5. We deploy Granger causality test to detect the direction of causality. The results of Granger causality test based on VAR is reported in Table 4 at the individual country level and Table 5 at the group level. It shows the presence of unidirectional causality from Singapore to India. The estimated F-statistics rejected the null hypothesis of non-causality at 1% level of significance. This suggests that Singapore's FDI inflows have significant impact on Indian FDI inflows. The findings also show the presence of bidirectional causality between India and Malaysia and between Thailand and India. This suggests that FDI inflows are very interdependent between India, Malaysia and Thailand. That means the FDI of Malaysia and FDI of Indonesia causes the FDI inflows of India. On the contrary, the FDI inflows of India also cause the FDI inflows of Malaysia and FDI inflows of Thailand. We, however, do not find any causality from FDI of India to FDI of Indonesia and FDI of Philippines. In addition to individual member countries of ASEAN, the study finds the bidirectional causality between FDI of India and FDI of ASEAN-5 as a whole. In other words, the FDI of India does Granger cause FDI of ASEAN-5 and vice versa. To complement this study, it is important to investigate whether the above long run relationship that we found are stable over the period of study. We conduct the diagnostic tests for serial correlation (LM test), autoregressive conditional heteroskedasticity (ARCH test), heteroskedasticity (White test) and stability test (Ramsey test). The estimated results are reported in Table 6. The results confirm the stability of the model on the nexus between economic growth and defense spending in the ASEAN- 5 countries.

4. Conclusion

The paper empirically examines the interdependence of FDI inflows between India and ASEAN-5 countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at the individual level and group level over the period 1988- 2007. The main findings of this study are summarized as follows:

1)   FDI inflows are integrated of order one for India and ASEAN-5 countries, namely Indonesia, Malaysia, Philippines, Singapore and Thailand, at the individual level and as a whole.

2)   Johansen's multivariate cointegration test confirmed the presence of cointegration between FDI inflows of India and ASEAN- 5, both at the individual level and group level. The multivariate cointegration test indicates that these countries are moving towards long run equilibrium. This evidence brings positive implications towards the establishment of the India-ASEAN Regional Trade and Investment Area (RTIA) in order to enhance the economic and integration between the two.

3)   The Granger causality model confirms the presence of causality between FDI of India and FDI of ASEAN-5 at the individual country level and as a whole. At the individual level, Granger causality confirms the presence of unidirectional causality from FDI of Singapore to FDI of India. This suggests that Singapore's FDI

inflows have significant impact on Indian FDI inflows but not vice versa. The findings also show the presence of bidirectional causality between FDI of India and FDI of Malaysia and between FDI of Thailand and FDI of India. This suggests that FDI inflows are very interdependent between India, Malaysia and Thailand. The study does not find any causality from FDI of India to FDI of Indonesia and FDI of Philippines. But the FDI of Indonesia and FDI of Philippines cause the FDI of Malaysia. At the group level, FDI of India causes FDI of ASEAN-5.

The policy implication is that the existence of interdependence between India and ASEAN-5 is not only boost the capital flows in the member countries but also provides a base for attaining high economic growth in the region. In fact, the current level of interdependence between FDI of India and FDI of ASEAN-5 is high or not, is a secondary issue. What is more important is the degree of commitment these countries would provide and the strong tendency of the intra-blocs of other regions in the world. As the direction of the journey is rather clear for the India- ASEAN-5 relationship that would be an interesting exercises towards the concept of the "Asian Economic Community (EAC)". The other important policy implication is the boost of macroeconomic sustainability in the Asian region. This will provide a tie between them and brings the road towards the broader desire for economic, monetary and financial cooperation in the EAC.

References

Balasurbramanyam, V. N., Salisu, M. A. and Sapsford, D. (1996). "Foreign Direct Investment and Growth in EP and IS Countries", *Economic Journal*, 106, 92-105.

Bende-Nabende, A., Ford, J., Santoo, B. and Sen, S. (2003). "The Interaction between FDI, Output and the Spillover Variables: Cointegration and VAR Analysis for APEC, 1965-99", *Applied Economics Letters*, 10, 165-172.

Bengoa, M. and Sanchez-Robles, B. (2003). "Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America", *European Journal of Political Economy*, 19, 529-545.

Bhagwati, J. (1994). "Free Trade: Old and New Challenges", *Economic Journal*, 104, 231-246.

Bhatt, K. S., Tripura, S. C. U. and Raj, K. D. (2004). "Causal Nexus between Foreign Investment and Economic Growth in India", *Indian Journal of Economics*, 337, 171-185.

Borensztein, E., Gregorio, J. D. and Lee, J. W. (1998). "How Does Foreign Direct Investment Affect Economic Growth", *Journal of International Economics*, 45, 115-135.

Brecher, R. A. and Findlay, R. (1983). "Tariffs, Foreign Capital and National Welfare with Sector Specific Factors", *Journal of International Economics*, 14, 277-288.

Chakraborty, C. and Basu, P. (2002). "Foreign Direct Investment and Growth in India: A Cointegration Approach", *Applied Economics*, 34, 1061-1073.

Chao, C. & Yu, E. S. H. (1994). Foreign Capital Inflows and welfare in an Economy with Imperfect Competition. *Journal of Development Economics*, 4, 141-154.

Choe, J. I. (2003). "Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth", *Review of Development Economics*, 7, 44-57.

De Mello, L. R. (1999). Foreign Direct Investment-led Growth: Evidence from Time Series and Panel Data. *Oxford Economic Papers*, 51, 133-151.

Dejong, D. N., Nankervis, J. C. and Savin, N. E. (1992). Integration versus Trend Stationarity in Time Series, *Econometrica*, 60, 423-433.

Dickey, D. A. and Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49, 1057-1072.

Dickey, D. A., Bell, W. R. and Miller, R. B. (1986). "nit Roots in Time Series Models: Tests and Implications. *American Statistician*, 40, 12-26.

Durham, J. B. (2004). "Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth" *European Economic Review,* 48, 285- 306.

Elliot, G., Rothenberg, T. J. and Stock, J. H. (1996). Efficient Tests for an Autoregressive Time Series with Unit Root. *Econometrica*, 64, 813-836.

Engel, R. F. and Granger, C. W. J. (1987). Cointegration and Error Correction: Representation, Estimation and Testing. *Econometrica*,   55, 251-276.

Engel, R. F. and Yoo, B. S. (1987). Forecasting and Testing in Cointegrated Systems. *Journal of Econometrics*, 35, 143-159.

Feensta, R. C. and Markusen, J. R. (1994)."Accounting for Growth with New Inputs", *International Economic Review*, 35, 429-497.

Germidis, D. (1977). Transfer of Technology by Multinational Corporations. Paris: Development Centre of Organization for Economic Cooperation and Development.

Granger, C. W. J. (1988). Some Recent Developments in a Concept of Causality. *Journal of Econometrics,* 39, 199-211.

Grossman, G. M., & Helpman, E. (1991). Innovation and Growth in the Global Economy. Cambridge, MA: MIT Press.

Haddad, M. and Harrison, A. (1993). "Are There Positive Spillover from Direct Foreign Investment: Evidence from Panel Data for Morocco", *Journal of Development Economics*, 42, 51-74.

Harris, R. and Sollis, R. (2003). Applied Time Series Modelling and Forecasting. Wiley, West Sussex.

Hermes, N. and Lensink, R. (2003). Foreign Direct Investment, Financial Development and Economic Growth. *Journal of Development Studies*, 40, 142-163.

Johansen, S. (1988). Statistical Analysis of Cointegrating Vectors. *Journal of Economics Dynamic and Control,* 12, 231-254.

Johansen, S. and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for Money. *Oxford Bulletin of Economics and Statistics,* 52, 169-210.

Karmakar, S. (2005). India- ASEAN Cooperation in Services- An Overview. Working Paper, No. 176. Indian Council for Research on International Economic Relations, New Delhi.

Kholdy, S. (1995). "Causality between Foreign Investment and Spillover Efficiency", *Applied Economics*, 27, 745-749.

Kohpaiboon, A. (2006). "Foreign Direct Investment and Technology Spillover: A Cross-Industry Analysis of Thai Manufacturing", *World Development*, 34, 541-556.

Kokko, A., Zejan, M. and Tansini, R. (2001). "Trade Regimes and Spillover Effects of FDI: Evidence from Uruguay", *Weltwritschaftliches Archiv*, 137, 129-149.

Kreinin, M. E. and Plummer, M. C. (2008). Effects of Regional Integration on FDI: An Empirical Approach. *Journal of Asian Economics*, 19, 447-454.

Kugler, M. (2006). "Spillovers from Foreign Direct Investment: Within or Between Industries", *Journal of Development Economics*, 80, 444- 477.

Li, X. and Liu, X. (2005). "Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship", *World Development*, 33, 393-407.

Mansfield, E. and Romeo, A. (1980). "Technology Transfers to Overseas Subsidiaries by US-based Firms", *Quarterly Journal of Economics*, 95, 737-750.

Moran, T. H. (2001). Parental Supervision: The New Paradigm for Foreign Direct Investment and Development. Washington: Institute for International Economics.

Nair-Reichert, U., Weinhold, D. (2001). "Causality Tests for Cross-Country Panels: A New Look at FDI and Economic Growth in Developing Countries, *Oxford Bulletin of Economics and Statistics*, 63, 153-171.

Ng, S and Perron, P. (2001). Lag Length Selection and the Construction of Unit Root Test with Good Size and Power, *Econometrica,* 69, 1519-1554.

Noorbakhsh, F., Paloni, A. and Youssef, A. (2001). "Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence", *World Development*, 29, 1593-1610.

Okamoto, Y. and Sjoholm, F. (2005). FDI and the Dynamics of Productivity in Indonesian Manufacturing. *Journal of Development Studies*, 41, 160-182.

Olofsdotter, K. (1998). "Foreign Direct Investment, Country Capabilities and Economic Growth", *Weltwitschaftliches Archive*, 134, 534-547.

Osterwald-Lenum, M. (1992). A Note with Quantiles of The Asymptotic Distribution of the Maximum Likelihood Cointegration Rank Test Statistics. *Oxford Bulletin of Economics and Statistics*, 54, 461–471.

Phillips, P. C. B., and Hansen, B. E. (1990). Statistical Inference in Instrumental Variable Regression with 1 (1) Process. *Review of Economic Studies,* 57, 99-125.

Pradhan, R. P. (2006). FDI in the Globalization Era: Chinese and Indian Economic Growth. *Prajnan,* 34, 323-343.

Toda, H. Y. and Yamamoto, T. (1995). Statistical Inference in Vector Auto-regressions with Possibly Integrated Process. *Journal of Econometrics*, 66, 225-250.

UNCTAD (1999; 2001; 2002; 2005). World Investment Report. New York: United Nations Conference on Trade and Development (UNCTAD).

Vadlamannati, K. C., Tamazian, A., & Irala, L. R. (2009). Determinants of Foreign Direct Investment and Volatility in South East Asian Economies. *Journal of the Asia Pacific Economy, 14, 246*-261.

Xu, B. (2000). "Multinational Enterprises, Technology Diffusion, and the Host Country Productivity Growth", *Journal of Development Economics*, 62, 477-493.

Zhang, K. H. (1999a). "Foreign Direct Investment and Economic: Evidence from Ten East Asian Economics", *Economia Internazionale*, 51, 517-535.

Zhang, K. H. (1999b). "How Does FDI Interact with Economic Growth in a Large Developing Country? The Case of China", *Economic System*, 21, 291-304.

Zhang, Q. and Felmingham, B. (2002). The Role of FDI, Exports and Spillover Effects in the Regional Development of China. *Journal of Development Studies*, 38, 157-178.

Zhang, Z. and Ow, C. H. (1996). Trade Interdependence and Direct Foreign Investment between ASEAN and China. *World Development*, 24, 155-170.

Table 1.

Countries	Mean	Med	Max	Min	Std	Skew	Kur	Correlation Matrix					
FDI$_{India}$	1.018	0.262	6.0	-0.114	1.367	1.888	6.515	1.00					
FDI$_{Indonesia}$	1.006	0.784	4.85	-3.23	1.619	0.273	4.29	-0.08	1.0				
FDI$_{Malaysia}$	0.999	1.003	1.658	0.177	0.357	0.001	2.623	0.27	0.04	1.0			
FDI$_{Philippines}$	0.994	0.926	3.052	-0.207	0.833	0.596	2.454	0.54	0.15	0.37	1.0		
FDI$_{Singapore}$	1.001	0.813	2.466	0.331	0.579	0.896	2.999	0.67	0.33	0.21	0.65	1.0	
FDI$_{Thailand}$	1.005	0.511	4.676	0.123	1.038	1.880	6.118	0.57	0.32	0.25	0.37	0.58	1.0
FDI$_{ASEAN-5}$	1.001	0.94	2.184	0.392	0.433	1.017	3.863						

Note: Med: Median; max: Maximum; Min: Minimum; Std: Standard Deviation; Skew: Skewness; Kur: Kurtosis.

Table 2. Unit Root Test Results

Variables	ADF Test		DFGLS Test		Conclusion
	Level	First Difference	Level	First Difference	
India	2.911	-4.149*	0.484	-2.852*	1 (1)
Indonesia	-3.00	-9.669*	-2.693	-6.756*	1 (1)
Malaysia	-3.543	-8.195*	-3.592	-7.844*	1 (1)
Philippines	-2.905	-5.810*	-2.510	-5.920*	1 (1)
Singapore	-2.533	-6.674*	-2.340	-6.371*	1 (1)
Thailand	-3.436	-6.366*	-3.494	-6.528*	1 (1)
ASEAN-5	-1.87	-5.260*	-1.76	-4.854*	1 (1)
	Ng- Perron Test				
Level					
	MZ$_a$	MZ$_t$	MSB	MPT	
India	-0.50	-0.11	0.222	8.895	
Indonesia	-10.13	-2.24	0.222	2.428	
Malaysia	-14.71	-2.682	0.182	1.78	

Table 2 continued

Philippines	-9.126	-2.122	0.233	2.738	
Singapore	-8.513	-2.018	0.237	3.047	
Thailand	-14.09	-2.654	0.188	6.470	
ASEAN-5	-5.64	-1.596	0.283	4.582	
At First Difference					
India	-4.89*	-1.213	0.246	16.84*	1 (1)
Indonesia	-17.92*	-2.980	0.166	1.410	1 (1)
Malaysia	-17.20*	-2.930	0.17	1.430	1 (1)
Philippines	-225.5*	-10.57*	0.047	0.171	1 (1)
Singapore	-18.18*	-2.804	0.154	-2.085	1 (1)
Thailand	-18.35*	-3.011*	0.164	5.074	1 (1)
ASEAN-5	-18.27*	-2.643*	0.145	2.628	1 (1)

Note: The parentheses indicate the test statistics at the first difference level; *: Statistically significant at 1% level; and other notations are defined earlier.

Table 3. Johansen's Cointegration Test Results

Null Hypothesis	Alternative Hypothesis	λ_{Tra}	λ_{Max}
At Individual Level			
r = 0	r = 1	142.6* [0.00]	63.104* [0.00]
r ≤ 1	r = 2	79.35* [0.01]	32.753* [0.01]
r ≤ 2	r = 3	46.60 [0.07]	23.369 [0.16]
r ≤ 3	r = 4	23.23 [0.24]	15.575 [0.25]
r ≤ 4	r = 5	7.656 [0.50]	7.6220 [0.42]
r ≤ 5	r = 6	0.034 [0.85]	0.0338 [0.85]
At Group Level (India and ASEAN-5)			
r = 0	r = 1	21.85* [0.00]	19.81* [0.00]
r ≤ 1	r = 2	2.036 [0.15]	2.036 [0.06]

Note: λ_{Tra}: Trace Statistics; λ_{Max}: Maximum Eigen Value statistics; *: Indicates the probability of significance at 1%.

Table 4. Granger Causality Test Results (At Individual Country Level)

Independent Variables	INDI	INDO	MALA	PHIL	SING	THAI
			At (1, 2)			
India	-------	0.275	4.431*	0.979	1.058	4.864*
Indonesia	1.096	-------	10.42*	0.577	2.069	0.008
Malaysia	5.165*	0.485	-------	2.829	1.195	0.641
Philippines	1.592	0.678	4.443*	-------	1.882	1.243
Singapore	6.525*	4.956*	1.462	4.299*	-------	0.234
Thailand	3.740**	5.962*	1.915	4.329*	2.884*	-------
Joint	18.53*	15.35*	32.14*	15.89*	11.35*	10.98*
			At (2, 2)			
India	----	0.692	0.012	0.915	4.763*	10.49*
Indonesia	0.639	----	2.715*	0.019	0.482	1.392
Malaysia	2.817*	0.027	----	1.727	1.034	0.054
Philippines	0.904	0.001	1.571	----	1.285	0.745
Singapore	7.503*	4.521*	1.444	2.367*	----	0.297
Thailand	1.937**	6.669*	0.761	0.090	0.072	----
Joint	15.20*	12.18*	8.367*	8.305*	10.53*	20.94*

Note: * (**): Indicates statistically significant at 1% (10%) level.

Table 5. Granger Causality Test Results (At Individual Country Level)

Independent Variables	INDI	ASEAN-5
At (1, 2)		
India	-------	4.940*
ASEAN-5	2.984**	-------
Joint	**19.43***	**65.22***
At (2, 2)		
India	-------	6.739*
ASEAN-5	8.342*	-------
Joint	**16.50***	**94.56***

Note: * (**): Indicates statistically significant at 1% (10%) level.

Table 6. Short Run Diagnostic Tests

Countries	LM	ARCH	Ramsey	White
Indonesia	136.15* [0.00]	69.73* [0.00]	6.23* [0.00]	0.118 [0.73]
Malaysia	48.07* [0.00]	37.19 [0.00]	6.972* [0.00]	2.842 [0.10]
Philippines	9.467* [0.00]	6.95* [0.01]	0.983 [0.38]	0.23 [0.63]
Singapore	17.66* [0.00]	4.248 [0.02]	2.052* [0.12]	0.848 [0.36]
Thailand	8.293* [0.00]	8.51* [0.00]	6.385* [0.00]	7.676* [0.00]
ASEAN	29.08* [0.00]	12.36* [0.00]	5.52* [0.00]	2.04 [0.16]

Note: LM: Serial Correlation LM Test; ARCH: ARCH Test; Ramsey: Ramsey Test; White: White Heteroskedasticity Test; the parentheses indicate that the test statistics is significant.
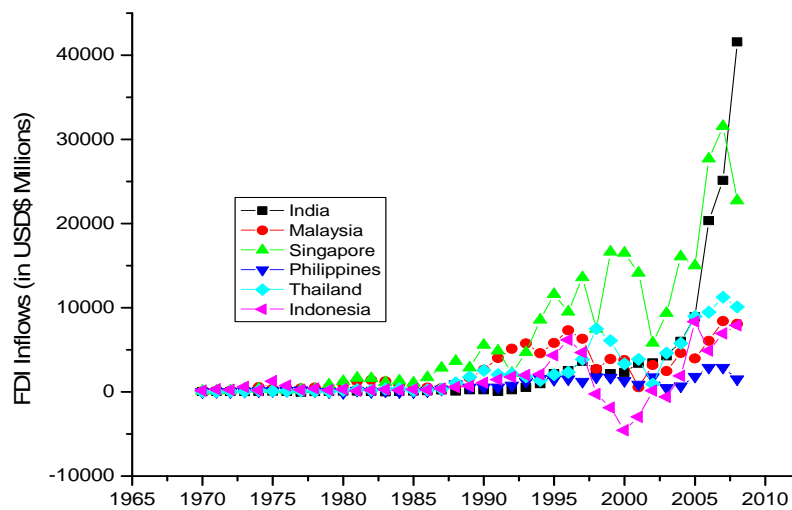

Figure 1. The Visual Plots of FDI between Indian ASEAN-5

An Empirical Analysis on the Development of Modern Service Industry and Its Countermeasures in Qingdao during Post-WTO Transitional Period

Wenxue Zhang (Corresponding author)

School of Business and Economics, Qingdao Technological University

No 2 of Middle Changjiang Street, Qingdao 266520, China

Tel: 86-532-8687-9006   E-mail: zhwx@qtech.edu.cn

Peng Liu

School of Business and Economics, Qingdao Technological University

No 2 of Middle Changjiang street, Qingdao 266520, China

Tel: 86-532-8687-9891   E-mail: lpwater@126.com

Abstract

With the end of Post-WTO Transitional Period, Qingdao's modern services present a picture of unprecedented prosperity. But during the process of development, many sharp problems emerged and it needs to handle seriously. By an empirical analysis on influencing factors of modern services in Qingdao, existing problems are found out and corresponding countermeasures are put forward.

Keywords: Post-WTO Transitional Period, Qingdao's modern services, Influencing factors, Countermeasure

1. The existing problems in the development of Qingdao's modern service industry

1.1 Though a strong trend of development it may have, Qingdao's modern services, relatively speaking, have characteristics of small amount, low proportion, as well as slow development

The tertiary industry of Qingdao has got a fast development in recent years. Its added value amounts to half GDP of Qingdao. (See figure 1). The finance and insurance, tourism and other service industries form the main part of Qingdao's modern services, and their proportion in the tertiary industry increased year by year . But in the view of horizontal comparison domestically, the proportion of tertiary industry in GDP of Jinan, Shanghai and Beijing, is 50.1%, 60% and 72% respectively in the year of 2008. If compared it internationally, the gap is wider. In 2008, the average proportion of tertiary industry in GDP of the world is higher than 65%. This proportion is more than 70% for most developed countries, nearly 40% for most developing countries, and nearly 60% for India.

Insert Figure 1 Here

1.2 The pulling effect of modern services haven't been fully played regionally, which largely influenced the economic development of Qingdao directly

Depending on the "Five district and one Port", the Qingdao Economic and Technological Development Zone in western Qingdao starts the strategy of "Port-FTZ interact", so as to build a major center of gathering, storaging, assembly, and distribution for domestic and international merchandises in northern China. The Qingdao New and Hi-Tech Development Zone and Qingdao Tourism&Holiday Zone in the eastern Qingdao focus on the development of High-technology industry, the exhibition industry and the tourism and leisure industry. Shinan District has developed a regional economic development system including building, finance, software, tourism and cultural & creative industry. In light of local conditions, the other areas of Qingdao, such as Shibei District, Sifang District, Licang District and Chengyang District, have also got a further development in the industry of retail, logistics, culture, and catering in recent years, which boom regional economy and satisfy consumption demands. But the pulling effect of these development hasn't been fully played, which largely influence the economic development of Qingdao.

From 2000 to 2008, the contribution rate of Qingdao's services to GDP growth increased from 41.6% to 45%. But during the same period, this contribution rate of other cities in eastern China increased more strongly. From 2004 to 2008, this contribution rate of Shanghai increased from 46% to 60%, and this contribution rate of Beijing increased from 61.9% to 72%. Compared with similar cities in Guangdong, Jiangsu and Zhejiang

province, Qingdao's services lag behind and the gap is getting larger.

1.3 Concerning the modern services in Qingdao, Finance, real estate and information software have got a fast growth, and meanwhile, tourism, logistics and marine service have got an outstanding development. However their service level is relatively low and their composite operation benefit is greatly restricted.

In 2008, the industry of finance and insurance of Qingdao got income of 17.35 billion Yuan, which accounts for 4% of Qingdao's GDP. The industry of real estate completed an income of 15.04 billion Yuan, and the industry of housing, catering and transportation completed an income of 90.07 billion Yuan. As for the tourism industry, it has become another pillar industry, and its income reached a new height of more than 50 billion Yuan. The application of information technology facilitated fast development of modern logistics. But their service level is relatively low, and their composite operation benefit is greatly restricted. The growth rate of labor productivity of Qingdao's services is far behind that of similar cities of Beijing, Shanghai, Guangdong, Jiangsu and Zhejiang. The added value per capita created by employees of service industry in Qingdao is only 60-70% of that of those similar cities.

1.4 The overall speed of growth tends to slow down, and the lifting speed of industry structure slows down too.

The overall speed of growth of Qingdao's modern services has slowed down since 1995. From table 1, we can see that the proportion of service industry to GDP in Qingdao increased from 20.8% in 1995 to the peak value of 26% in 2003, and then declined slowly, and then rebounded since 2006 to 23.7% in 2008. The growth speed tends to slow down and so is the lifting speed of industry structure. From graph 2, we can see that proportion of Qingdao's service industry to its GDP has been promoted substantially since 1990. But in recent years, the growth speed of service industry slowed down, so was the proportion of service industry to GDP. In 2005, the added value of service industry accounts for 41.6% of GDP. In 2008, this proportion rose to 45%. Compared with similar cities of Guangdong, Jiangsu, Zhejiang, the modern industry of Qingdao falls behind and the gap is still very large.

Insert Table 1 Here

2. An analysis on the factors that influence the development of Qingdao's modern service industry

2.1 A general analysis on the influencing factors

2.1.1 Qingdao's modern service industry has a low level of development, slow growth rate and an unreasonable internal structure

Qingdao's modern service industry doesn't make a prominent performance in promoting the adjustment of economic structure and optimization of industrial structure. Firstly, the added value of Qingdao's modern service industry is small in overall scale, low in proportion, and unreasonable in view of internal structure. The proportion of its added value to GDP has lingered around 20% in recent years. The proportion of technology intensive service industry and human capital intensive service industry is tending to be small. Secondly, Qingdao's producer service industry and consumer service industry, which offer intermediate demand service to modern production sectors, have an unreasonable structure and low efficiency. Thirdly, regarding the support system of modern manufacturing industry, Qingdao's modern service industry is in the situation of incomplete development with a lagging development to serve the manufacturing industry pre-production and post-production, and it can't meet the demand of the manufacturing industry in rapid growth.

2.1.2 The reform of administration system lags behind. Policy barriers to entry and many phenomena of monopoly still exist in modern service industry. Imperfection exists in policy-oriented mechanism.

Firstly, in many areas of Qingdao's modern service industry, the level of marketization is relatively very low, especially in the area of finance, telecommunication, railway and aviation. Such areas are in the situation of monopoly, regulation or limited operation due to the restriction of current systems and mechanisms. Secondly, Imperfection exists in policy-oriented mechanism. Although many encouraging policies have been produced in succession to promote the development of modern service industry, there are imperfections in policy system regarding the measures in implementation of such policies. These policies were basically drafted by a single industry and lacked the quality of wholeness and guidance.

2.1.3 The proportion of service industry to GDP is hard to rise

The growth model driven mainly by investment, the economic development pattern formed mainly by attracting foreign investment and carrying on international industrial transfer led to a strong development of manufacturing industry that limited the upside potential of service industry objectively. During the period of "the tenth five year plan" and "the eleventh five year plan", the investment of Qingdao in the second industry was much larger than

that of service industry. Capital flow has great guiding impact on industry development. The proportion of service industry to GDP is hard to rise under such circumstance.

2.1.4 Many factors limit the development of service industry

Marketization, industrialization and internationalization haven't play fundamental role in resource allocation of service industry. The mechanism of determination of service price by market hasn't been established. The pattern of various economic sectors coexisting and developing together hasn't been formed. The service industry has an over reliance on government input and it has great difficulty in advancing by the way of industrialization. The low degree of marketization leads to services lack of motivation. The slow industrialization leads to it lack of energy. The low level of internationalization leads to it lack of competition. The lagging urbanization leads to it lack of demand.

2.1.5 The modern service industry is short of human resources, especially high-quality personnel.

The modern service industry is the industry of knowledge-intensive and talent-intensive. Most of service trades have the characteristics of high levels of human capital, the content of high-tech and high added-value. Their development demands high-quality personnel. A city's good development of services depends largely on its training, accumulation and utilization of professionals in modern service. Now, most of talented people in Qingdao are concentrating on oceanographic technology. Compared with many cities in China, Qingdao's high-level, inter-disciplinary, and international talent for modern service industry is very scarce. Such scarcity of talent has been a key factor restricting its development of modern service industry.

2.2 An empirical analysis on factors influencing Qingdao's modern service industry

With the data of Qingdao Statistical Yearbook, an econometric model for factors influencing the development of modern service industry from 1994 to 2008 is analyzed. The following visit variables are selected: (1) value added per capita in modern services industry (RJFW). The value-added of modern service sector equals value-added of the tertiary industry minus that of two traditional services sectors: Transportation, Storage, Post and telecommunication service sector, and the wholesale, retail trade and catering service sector. (2) Level of urbanization (CSHSP), which is represented by the proportion of urban population to national population. (3) Proportion of producer service industry to GDP (SCXFB). Due to the limitation of data acquisition, the value-added producer service industry is represented by the value-added of finance and insurance service sector. (4) Degree of industrialization (GYHCD), which is the proportion of value-added of the secondary industry to GDP. (5) Disposable income per capita. (RJSR)

The explained variable is RJFW. The explanatory variables are CSHSP, SCXFB, GYHCD and RJSR. Suppose there is linear relation between the explained variable and the explanatory variables in this model. Each variable is used and handled in logarithmic form. 15 years data of each variable between 1994 and 2008 is adopted to make data analysis and the data fitting result is showed in table 2. Thus the basic form of the model can be obtained as the following:

Log(RJFW)=13.71+7.11Log(CSHSP)+0.29Log(SCXFB)+2.29Log(GYHCD)+2.73Log(RJSR)

From the regression results of table 2, we can see that all the explanatory variables have a significant effect on RJFW with a high goodness of fit of 99.14%, and they can explain 98.79% part of RJFW variation. The statistics of the equation meet the requirement of significance. The coefficient of each variable shows that Level of urbanization has the largest influence on development of service sector, and next large influence comes from the disposable income per capita.

Insert Table 2 Here

By analyzing the above results, we can get the following conclusion:

Firstly, level of urbanization, disposable income per capita, degree of industrialization and modern producer service industry are major factors significantly influencing development of modern service industry. The significance of their influence decreases one by one.

Secondly, as a major part of modern service industry, the finance and insurance industry has comparatively little influence on modern service industry, which has much deviation with reality. Although the development of modern service industry benefits much from the healthy development of finance and real estate, it has comparatively little influence on Qingdao's modern service industry so far.

Thirdly, level of urbanization has significant influence on development of modern service industry. The level of urbanization in Qingdao is about 35%, a very low level which restricts effective demand and supply of modern service.

Fourthly, disposable income per capita has big contribution to and clear impact on service sector and it is a major factor influencing the development of modern service industry. Qingdao's disposable income per capita has been rising continuously and stably, especially for the urban residents. Such increase of disposable income per capita enhances people's ability to enjoy modern service.

3. Strategic choice of Qingdao to develop modern service industry

3.1 clarifying the development strategy for Qingdao's modern service industry and the functions of government administration

The government should establish a special leading group of modern service industry, and work out carefully "the Development Plan of Qingdao's Modern Service Industry". As for the important modern services in the plan, operative and practical guidance should be given in industry policy, tax preference, fiscal and financial assistance, price subsidy and land support. At the same time, the government should clarify the functions of government administration, truly setting enterprises and social organizations apart from government and also separating enterprises from social institutions. Remove and modify those rules not suitable for fast development of modern service. Break down the old closing system of self-service. Try to explore the way of industrialization of modern service industry.

3.2 Keep pushing the reform pace of Marketization, industrialization and socialization of Qingdao's modern service industry.

As for marketization, the government should promote marketization of resource allocation in modern service sector, relax regulations and restrictions, alter the industry organization structure of monopoly, and build a market order of fair competition. Market entry standards should be reduced. Market barriers should be eliminated. The quality of service should be improved. The efficiency of service should be increased. As for industrialization, many modern service enterprises should be cultivated with high credit, famous brand and international competitiveness. The guidance function of industry policy should be used to form an industrial development and an efficient and reasonable resource allocation. As for socialization, ancillary services which are not related to core competitiveness should be peeled off and self-service should be turned into social and professional service. During this process of transition, a target concept should be kept: high service efficiency and low service cost. The action of increasing "value discovery" of service economy artificially and incorrectly for purpose of seeking new economic growth should be forbidden. Such action may lead to self-inhibition of service economy.

3.3 A systematic planning and design should be made on Qingdao's modern service industry.

Accumulation areas of modern service with distinct characteristics should be built considering transition of urban functions, systematic structure, service network topology, and service industry chain and service information database. Centering on accumulation areas, function positioning and develop priority should be clarified, attraction of investments should be enhanced, and development of modern service should be accelerated.

3.4 Great importance should be attached to professional training of modern service.

The industry of modern service is highly knowledge-intensive and its value comes from high-quality professionals. So the key problem of talent insufficiency should be solved for Qingdao to develop modern service industry. Now talents of finance, software, information and consulting are very scarce, especially those of high-level compound talents who can deal with complicated difficulties, coordinations and cooperations. Emphasis should be put on the following works: (1) Preferential policies and high income should be adopted to attract high-level international talents in key areas of modern service sector. Overseas Chinese experts and students should be encouraged to homecoming and start business by various ways and methods. (2) The advantage of educational resources in Qingdao's universities and scientific research institutions should be fully used. Effective measures should be taken to strengthen the integration and cooperation of industry, education and research. Compound talents should be cultivated with great strength. (3) In order to satisfy the demand of modern service for human resource, existing personnel in modern service should be trained by experts and scholars and the employees of modern service should be sent to abroad to study further.

References

Mingshan Pan, Ankang Wang. (2009). Strategic choice of development of Shanghai's modern service industry. *Shanghai City Development,* 3,10-12

Guanhua Xu, Dongmei Liu, Qiyan Liu. (2009). Development trends and countermeasures of modern service

industry. *Study on Strategy and Decision-making,* 3,248-255.

Qingdao statistical yearbook. (2008).

Table 1. the proportion of modern industry to GDP of Qingdao in major years

year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
proportion	20.8	19.9	22	21.6	21.6	25.1	26	25.9	26	22.8	20.1	21.1	22.2	23.7

Source: according to the data from Qingdao Statistical Yearbook

Table 2. parameter estimation by the equation of linear regression

model	Unstandardized Coefficient		T test value	significance
	B value	standard deviation		
Constant	13.71146	4.637320	2.956763	0.0144
Log(CSHSP)	7.111996	2.818099	2.523686	0.0302
Log(SCXFB)	0.297305	0.070860	4.195681	0.0018
Log(GYHCD)	2.285371	0.992427	2.302809	0.0040
Log(RJSR)	2.727171	0.238319	7.247295	0.0000

Remarks: R^2=0.9914, adjustment R^2=0.9879, F=287.340, D-W=2.071
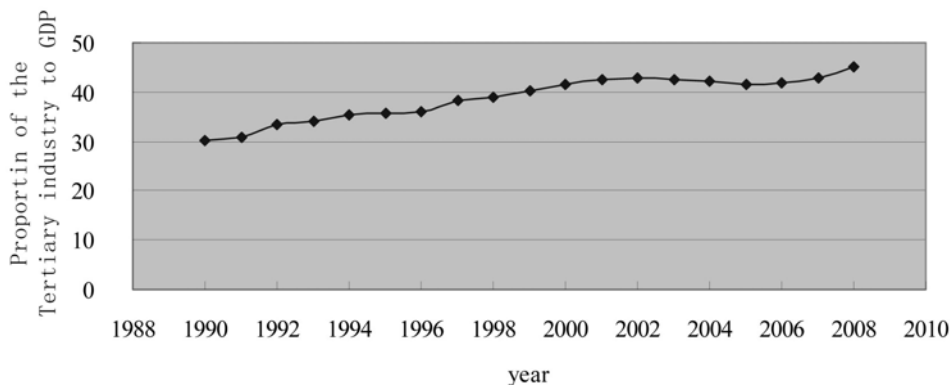

Figure 1. The proportion of added value of tertiary industry to GDP of Qingdao in major years

Fuzzy Sketch for Implementation of E-Business Plan in Iran SMEs

(Case Study: Yazd Industrial Town-Iran)

Yasser Amiri

Executive Master of Business Administration (EMBA), University of Yazd, Iran

E-mail: Yasser3362243@gmail.com

Dr. Habibollah Salarzehi

Faculty of Management and Accounting, University of Sistan and Baluchestan, Iran

E-mail: salarzad@yahoo.com

Abstract

Significant developments in IT and communications systems in the world specifically in recent decades have prompted under-developed countries to become sensitive to new opportunities and undertake an all-out planning to register a jump in their development and increase their economic and social growth in a bid to narrow their gap with developed countries and even vie with them. To that effect, e-commerce has been lent too much credence and our study here seeks to analyze the elements required for implementing e-business plans in small and medium-sized enterprises. To this end, we present a fuzzy map-based methodology in order to explore the most important critical success or failure factors for implementing e-business plan. Conducting an analysis on 61 indices bring us to the conclusion that factors like development, education and management of human resources, production scheduling, foreign relations management, communications systems and financial management are among the important critical failure factors.

Keywords: E-commerce, E-business plan, Critical success and failure factors, Fuzzy logic, SMEs

1. Introduction

Today, the Information Technology has caused numerous developments in commerce. These developments are not due to the facility or rapid growth of IT and the main reason behind the daily-increasing use of IT and Internet is the ability to cross international frontiers and exchange data regardless of geographical restrictions (Hayak, 2002).

E-business is one of the IT and communications sectors to have been widely experienced in the past decade. Most enterprises are implementing e-business plan in an attempt to win a toehold in global markets and win over new, influential and effective customers. But using e-business plan in commercial activities requires attention to a series of influential endogenous and exogenous factors. The enterprises' heed to these factors and planning to make the best use of e-business technology will guarantee their success and help them grow (Gharbali Moqaddam and Eqdami, 2003).

All pieces of research conducted hitherto about e-business have pointed only to specific aspects of the relevant factors. But in our research, we are determined to study the research activities carried out so far in order to indentify all relevant factors in view of finding out the most important critical success and failure factors in implementation of e-business plan in small and medium-sized enterprises.

Since in our research, we cite views of experts and interviews in a qualitative manner, assessment of the views of the sample space by non-fuzzy methods could be called into question for two reasons. The first and foremost is that non-fuzzy methods ignore the ambiguity related to individual judgments when figures are transferred. The second point is that mental judgment, choice and priority of assessors largely impact the results (Ching et al, 2005). But fuzzy methods serve as helpful tool for handling vague problems. Fuzzy concepts can help us use linguistic variables in naturally colloquial langue for assessment of indices and present more precise analyses by connecting these variables with proper membership functions. This article seeks to implement a fuzzy approach to examine the factors contributing to the implementation of e-business plan.

2. Literature review

Small businesses play an important role in economies all over the world by creating jobs and contributing to the socio-economic development of their communities. Small business owners possess little or no training on ITs and lack awareness of the benefits that ITs may provide to their business. The result is a major barrier to IT

adoption. The smaller the enterprise, the greater that this problem becomes, since most small companies are not using IT for their business activities (Wolcott, 2008).

Electronic business is defined as doing business through automatic transactions, exchanges and interactions by information and communications technologies in view of economic objectives. E-business may include inter-organizational systems like telephone, Internet, email or intranet to support online commerce. Therefore, one can say that e-business requires automatic transactions in business (Hanafizadeh, 2006)

Depending on whether organizations or individuals are the adversary party, e-business could be classified as follows. Relationships take shape based on commercial objectives.

• Business to Business (B2B)

• Business to Consumer (B2C)

• Consumer to Consumer (C2C)

• Business to Government (B2G)

• Government to Business (G2B)

E-business plan in different markets requires knowledge about the obstacles on the way of implementing this technology in the economy of each country (with regards to cultural, social, political and economic differences) specifically in their financial markets. Numerous studies have been conducted about these obstacles and we refer to them in short.

Akkerenand and Cavaye (2002) have divided the factors influencing electronic commerce into three groups:

1) The features of manager and owner (perceived interests, computer knowledge, self-confidence, perceived control, mental norms)

2) Investment efficiency rate

3) Features of the organization (readiness, external pressure, complexity of structure, information intensity)

Flynn and Purchase (2001) have their own classification of barriers:

1) Technical barriers: encoding, lack of qualified staff, low-speed Internet, compatibility to different systems

2) Financial barriers: Inability to reach the proper output, high-risk investment, costly training of staff, lack of productivity and mistrust of the market, available credit, high implementation costs

3) Organizational barriers: Lack of commerce models, weak programming and organization, lack of enough knowledge, lack of infrastructure, resistance of trade partners, implementation scheduling, lack of interest in EC

4) Behavioral barriers: Confidence and risk, cheating, resistance to any change in the current processes, need for new training courses

Mukti (2000) examined the barriers to implementation of EC and expressed them in terms of significance as follows: security, financial and contractual barriers, hackers intervention, lack of skilful IT staff, Internet phishing, lack of globalization activities, confidentiality, ownership, insufficient computers and Inquisition.

In developing countries, extensive Internet restrictions could be attributed to the market and infrastructural factors controlling access to ICTs (Mercer, 2006).

Moreover, producers of ICT products have found leading distributors often in developed countries thereby limiting the access to developing countries. Lack of access to credit cards is a main barrier to e-business development. Previous studies have reached that conclusion in B2C electronic commerce in Russia, India and Latin America. In Asia, between 35 and 40 percent of exchanges are carried out in cash (face-to-face) (Biederman, 2002). Other aspects of financial systems have also lagged behind standards and they have failed to progress as they merit. For instance in the Caribbean islands, banks offer no online exchanges or electronic payment.

Political barriers are created in an organized way by official groups. Many developing countries lack any regulations to recognize and certify digital and electronic signature. Some developing countries regard ICT products as luxury materials and they levy customs duties, value-added tax and extra commercial rights on them (UNCTAD, 2002). For their part, weak official organs contribute to lowering the customer's confidence in EC and their inclination for online purchase.

A relevant study conducted in Brazil attributes the low rate of incompatibility with EC to the lack of any EC regulations, insufficient support for Internet purchases, concerns about privacy and confidentiality and Internet taxation (Tigre and Dedrick, 2004).

In developing countries, the organization's staff, the nature of the activity, technological resources, lack of knowledge about potential opportunities, incompatibility with new phenomena and inclination for inertia result in a negative impression about EC (Molla and Licker, 2005).

The lack of knowledge among customers about the advantages of EC and their mistrust of the electronic service providers also hinder any development of EC in these countries. For instance, the low level of tendency to use credit cards in Latin America is attributed to their mistrust of service providers rather than to their limited access (Hilbert, 2001). Another study showed that confidence in post networks for a 100-dollar package is strongly compatible with GNP per capita (the purchasing power factor). Also, concerns related to post robberies hamper EC in Tanzania (Kshetr, 2007).

A total of 61 indices identified through the literature of the research works already done classified within ten criteria. The elements and factors used in this research are illustrated in Table 1(Ozer, 2002; Kendall, 2001; Cooper, 1999; Grandon & Pearson, 2004; Ling, 2001; Rashid & Qirim, 2001; Wang & Tsai, 2002; Heck & Ribbers, 1999; Daniel & Gkimshaw, 2002; Molla & Licker, 2001; Quaddus & Didi , 2005).

3. Methodology

In this study, we intend to work out a methodology for elucidation of fuzzy sketch and identification of critical success and failure factors in implementation of e-business plan in SMEs by using fuzzy assessment principles.

3.1. Sample

A total of 130 managers and experts from small and medium-sized enterprises active in the Yazd industrial town participated in the study.

3.2. Designing the research questionnaire

A questionnaire based on the factors presented in table 1 has been designed and distributed among participants in question to measure the performance and significance of factors of e-business plan implementation in SMEs. Some variables like the sector in which the firms have been active and duration of the firm's life have been control variables and haven't had effect on the other variables.

The vagueness and uncertainty arising in human evaluation of these indices makes the conclusion inaccurate and imprecise, but the fuzzy logic takes into account the vagueness and uncertainty and offers a proper tool for dealing with them. The linguistic variables and fuzzy numbers used in this research have been proposed in Table 2.

3.3. Validity & Reliability of research tool

In order to endorse the content and criterion validity, the university professors and experts were asked to express themselves about the items of each factor using the following terms: absolutely appropriate, appropriate, somewhat appropriate, inappropriate and absolutely inappropriate. Once the views collected, the validity of the questionnaire of our research was estimated at 0.894.

The Cronbach's alpha has been calculated in order to confirm the reliability of the questionnaire. It has been computed at 0.970. The alpha calculated for each factor is above 0.70, showing the acceptability of the reliability of the questionnaire.

3.4. Integration of views

Many methods like average, median and mode could be used for integrating the evaluations of different decision-makers. Average has largely been used in different pieces of research and here we use it again.

Assume the assessment committee is comprised of m assessors, $E_t, t = 1, 2, ..., m$ and the elements of e-business are indicated with $F_j, j = 1, 2, ..., n$. Moreover, suppose that there are $R_{tj} = (a_{jt}, b_{jt}, c_{jt})$ and $W_{tj} = (x_{jt}, y_{jt}, z_{jt})$ fuzzy numbers used for estimating linguistic phrases to show the performance and importance of each element respectively.

The following formulas show how the fuzzy ranking mean R_j and the weighted fuzzy mean W_j are calculated.

Formula 1: $R_j = (a_j, b_j, c_j) = (R_{j1}(+)R_{j2}(+)...(+)R_{jm}) / m.$

Formula 2: $W_j = (x_j, y_j, z_j) = (W_{j1}(+)W_{j2}(+)...(+)W_{jm}) / m.$

The fuzzy numbers corresponding to the linguistic evaluations of the elements have been illustrated in Table 3 in the Appendix.

3.5. Locating items on the fuzzy sketch of e-business plan implementation SMEs

The vertical pivot describes the performance and the horizontal one describes the significance of the factors of implementing e-business plan in SMEs. The data are finalized and each pivot is divided into three segments to give nine geographical locations. Each item will be located in a unique position based on the score it has obtained in the preceding step.

Like a geographical map, this map will locate the items of implementation of e-business plan. The locations on the diameter of the matrix show the balance between the significance and performance. The factors lying there enjoy relative balance because the scores are mean. Three locations above the diameter show defection and fault due to the fact that their performance has not been heeded despite the high importance of elements. And the three locations beneath the diameter indicate the elements with overwork compared to their significance.

Based on the data provided in Table 3 of Appendix, the fuzzy sketch is like Figure 1.

3.6. Ranking critical success and failure factors in e-business plan implementation

The faulty factors are in fact barrier hindering the implementation of e-business plan in SMEs and they are considered to be critical failure factors. Similarly, the factors located beneath are critical success factors. Since it is impossible to concentrate on all of these factors, they need to be ranked and then the most important and most influential of them would be identified by Pareto Law.

3.6.1. Weighted Performance of Factors of E-Business Plan Implementation in SMEs

Considering the significance of factors and their performance together can promote the ability to elucidate the success or failure indicator. Based on this interpretation, the factors with higher degree of significance and performance get higher scores. The significance is multiplied by the performance to produce a fuzzy number for ranking. And for critical failure factors ranking, the important point is that harmful factors are those with lower performance, regardless of their high significance. In order to obtain an indicator to measure the critical degree of these factors, the significance has first to be inversed before being multiplied by performance. The resultant in a progressive form will be indicative of the harmfulness of factors.

Suppose $W_j, R_j, j = 1,2,...,n$ are fuzzy performance and fuzzy significance given to the item (j) and we are in the critical success factors area. The fuzzy numbers indicative of the final significance of these factors in success are calculated as follows:

Formula 3: $CSFS = \sum_{j=1}^{n} (W_j(0)R_j)$

On the other hand, in case the aforementioned scores belong to critical failure factors, the fuzzy numbers are calculated as follows:

Formula 4: $CFFS = \sum_{j=1}^{n} ((1-W_j)(0)R_j)$

The critical success and failure factors have been ranked in Tables 4 and 5 in the Appendix.

3.6.2 Most influential critical success and failure factors in e-business plan implementation

In this stage, the scores from the previous stage are ranked in order to clarify their significance to senior managers and decision-makers. The 5th column of Table 4 and 5 of Appendix(Index column) show the priority for fuzzy numbers.

Since taking into consideration a large number of variables in a short period of time is impossible, it would be necessary to determine the most influential ones. Pareto Law can help us achieve this objective. According to this law, 80 percent of effects are due to 20 percent of causes. Based on this principle, paying attention to this 20 percent could influence 80 percent of effects. The 6th and 7th columns of Tables 4 and 5 in the Appendix show the relevant calculations.

According to Table 4 and 5, the most critical failure factors are as follows:

• Development, education and management of human resources

• Production scheduling

• Foreign relations management

• Upgraded communications systems

• Generation and management of finance

And the most important critical success factors are:

- Price of commodities or services

- Performance of customers

- International relations

4. Conclusion

This research has been conduced to provide the grounds for implementing e-business plan in small and medium-sized enterprises. To that effect, the literature of the research and feedback of views of experts helped identify 61 elements within the framework of ten factors. The conclusion from fuzzy set was that the most important critical failure factors in the e-business plan included development, education and management of human resources, production scheduling, management of foreign relations, upgraded communications systems in the organization as well as generation and management of funds. The following points could be taken into account for improving the implementation job.

(1) Long-term planning to remove barriers to e-business and e-commerce

(2) Reconsidering the processes in small and medium-sized enterprises in order to serve customers based on competitive advantages due to IT and communications technology

(3) Convincing managers about their tasks vis-à-vis e-business plan

(4) Training the staff about new skills about e-business

(5) Regular investment in IT and communications to boost the security of electronic networks

(6) Employing prominent experts and qualified managers

(7) Management stability, reduced purge among decision-makers and setting a scheduling for e-business implementation

References

Akkeren, J. K. V and Cavaye, A. L. M. (2000). "Factors Influence on Entry-level Electronic Commerce Adoption in the Automobile Industry in Australia", *Working Paper*.

Biederman, D. (2000). "Ecommerce comes to Asia", *Traffic World* 26 (9) 23.

Ching-Torng, L. Hero, Ch. Po-Young, Ch. .(2005). "Agility index in the supply chain", I*nt. J. Production Economics*.34, Pp. 141-159

Cooper, J. and Burgess, L. (1999) "A model of Internet commerce adoption (MICA)", Idea Group Publishing, p.210.

Daniel, E.M. and Gkimshaw, D.J. (2002) "An exploratory comparison of electronic commerce adoption in large and small enterprises", *Journal of Technology*, Vol. 17, pp. 133-147.

Flynn, A. and Purchase, S. (2001). "Perceptions of Barriers to E-Commerce", ANZMAC Conference, 1st-5th December, Massey University, New Zealand.

Garbali Moqaddam and Eqdami (2003), "e-business, a requirement to global trade", *Tadbir,* 141.

Grandon, Elizabeth and Pearson, M. (2004)"Electronic commerce adoption: an empirical study of small and medium US businesses", *Information & Management*, 42, pp. 197-216.

Hanafizadeh, P. (2006). "E-commerce, definitions and barriers, Sharif university", Tehran, Iran.

Hayak, V. (2002). "Economics and knowledge", *Economical* N41, www.virtualschool.Edui/ Economicsandknowledge.Html.

Heck, E.V. and Ribbers, P.M. (1999)."The adoption and impact of EDI in Dutch firms", Proceedings of the 32nd Hawaii International Conference on System Science, pp.157-172.

Hilbert, M.(2001). "Latin America on its Path into the Digital Age: Where are we? "CEPAL/ECLAC, Santiago, Chile.

Kendall, Jon (2001)."Receptivity of Singapore"s SMEs to electronic commerce adoption", *Journal of Strategic Information System*, 10, pp. 223-242.

Kshetr,N. (2007). "Barriers to e-commerce and competitive business models in developing countries: A case study", *Electronic Commerce Research and Applications* 6 . 443–452.

Ling, C. (2001)."Model of factor influences on electronic commerce adoption diffusion", Curtin University of Technology, Working Paper, pp.10-16

Mercer, C. (2006). "Telecentres and transformations: modernizing Tanzania through the Internet", *African Affairs* 105, 243–264.

Molla, A. and Licker, P.S. (2005). "Perceived e-readiness factors in ecommerce adoption: an empirical investigation in a developing country", *International Journal of Electronic Commerce* 10 (1) pp.83–110.

Molla, A.and Licker, P.S. (2001).E-commerce systems success: An attempt to extend the Delone and Maclean Model of IS success, *Journal of Electronic Commerce Research*, Vol. 2, No.2, pp. 131-141.

Mukti, N. A. (2000). "Barriers to putting business on Internet in Malaysia", *The Electronic Journal of Information System in Developing Countries*, 2 (6), pp.1-6.

Ozer, Muammer. (2002). "Online business: tailoring your business environment in order to compete", *International Journal of Information Management*, No.14, pp.35-49.

Quaddus, Mohammed and Didi, Achjari. (2005). "A model for electronic commerce success" *Telecommunications Policy*, No. 29 , pp. 127-152

Rashid, M.A. and Qirim, N.A. (2001) "Ecommerce technology adoption framework by New Zealand SME's", *Research Letter of Information and Mathematical Science*, Vol 2, pp. 63-70.

Tigre, P.S. and Dedrick, J. (2004). "E-commerce in Brazil: local adaptation of a global technology, Electronic Markets" 14 (1) pp. 36–47.

UNCTAD, (2000). "Building Confidence: Electronic Commerce and Development", United Nations Conference on Trade and Development, Geneva.

Wang, J. C. and Tsai, K.H. (2002) " Factors in Taiwanese firm's decision to adopt electronic commerce: An empirical study", *The World Economy*, Vo. l25, November & August, pp. 1145-1167.

Wolcott, P., Mehruz Kamal, M. and Qureshi, S. (2008), "Meeting the challenges of ICT adoption by micro-enterprises", *Journal of Enterprise Information Management*, Vol. 21 No. 6,616-632.

Appendix

Table 1. Factors of implementing e-business plan

Factor	Items	Factor	Items
Supply Chain	Services to customers	**Management**	Development, education and management of human resources
	Processing orders		Management of information resources and systems
	Transportation system		Management of physical and financial resources
	Production scheduling		Implementation of programs
	Inventory planning		Management of improvement and change
	Sales and logistics		Management of foreign relations
	Relations with vendors		Acquisition, creation and management of finance
Customer	Good relations with customers		Management of strategic projects
	Providing services to customers	**Technical Requirements**	Operation of informatics section and connection to Internet network
	Monitoring market changes and customer satisfaction		Wireless communications
	Performance of customers		Upgraded communications systems
Competitors	Making the organization agile and flexible		Systems analyzer presence
	Benchmarking models of successful rivals		Internet address (official website)
	Innovation in marketing		Emergency power system for the network
	Winning foothold in markets where rivals are successful		High security of the network
	Conquering untapped markets where rivals are still absent		International relations
	Signing strategic contracts	**Financial Infrastructures**	Secure E-payment
Suppliers	Price of commodities or services		Development of credit cards
	Quality (the ranking earlier agreed upon)		Development of banking network
	On-time delivery	**Organization Type**	Organizational culture
	Financial capability of supplier to make repay debts		Size of the organization
	Geographical position of supplier		Contribution of senior managers
	Continued improvement of services or commodities		Organizational structure
	Creativity	**Productions & Services**	Designing products and services
Political & Law Infrastructures	Electronic contracts		Evaluating the effectiveness of new products/services
	Electronic signature		Preparation for production
	Guaranteed operation		Innovation development process and offering new products or services
	Intellectual property rights law		Output
	Privacy		Innovation in the production process
	Cybercrimes		
	Supporting consumers		
	Customs duties		

Table 2. Linguistic variable & Fuzzy numbers

Linguistic variable	Value
Very Low	(0, 0. 5, 1.5)
Low	(1, 2, 3)
Fairley Law	(2, 3.5, 5)
Medium	(3, 5, 7)
Fairley High	(5, 6.5, 8)
High	(7, 8, 9)
Very High	(8.5, 9.5, 10)

Table 3. Fuzzy scores of importance and performance of items

	Item	Importance	Performance
X1	Development, education and management of human resources	(8.43,9.28,7.36)	(3.20,4.82,6.44)
X2	Management of information resources and systems	(6.98,8.07,9.04)	(3.25,4.79,6.34)
X3	Management of physical and financial resources	(6.60,7.76,8.82)	(3.80,5.42,7.03)
X4	Implementation of programs	(6.85,7.98,8.82)	(3.87,5.41,6.93)
X5	Management of improvement and change	(7.73,7.94,8.96)	(3.34,4.86,6.41)
X6	Management of foreign relations	(7.05,8.15,9.08)	(3.01,4.68,6.36)
X7	Acquisition, creation and management of finance	(4.06,8.15,9.08)	(3.37,4.89,6.45)
X8	Management of strategic projects	(6.48,7.69,8.79)	(3.82,5.37,6.91)
X9	Operation of informatics section and connection to Internet network	(6.55,7.75,8.82)	(3.15,4.79,6.45)
X10	Wireless communications	(6.45,6.73,8.73)	(3.27,4.82,6.38)
X11	Upgraded communications systems	(7.03,8.11,9.05)	(3.23,4.69,6.16)
X12	Systems analyzer presence	(6.35,7.60,8.73)	(2.84,4.24,5.67)
X13	Internet address (official website)	(7.43,8.49,9.32)	(4.39,5.89,7.39)
X14	Emergency power system for the network	(6.74,7.88,8.88)	(3.83,5.42,7)
X15	High security of the network	(6.76,7.94,8.96)	(3.30,4.93,6.57)
X16	International relations	(5.55,7.59,8.39)	(3.31,4.89,6.48)
X17	Secure E-payment	(6.47,7.66,8.75)	(3.30,4.77,6.23)
X18	Development of credit cards	(6.62,7.80,8.85)	(3.35,5,6.66)
X19	Development of banking network	(6.04,7.26,8.41)	(3.02,4.51,6.01)
X20	Organizational culture	(6.49,7.67,8.72)	(3.81,5.3,6.76)
X21	Size of the organization	(6.47,7.72,8.80)	(3.10,4.59,6.10)
X22	Contribution of senior managers	(6.47,7.70,8.79)	(3.63,5.21,6.78)
X23	Organizational structure	(6.13,7.37,8.54)	(3.50,5.16,6.81)
X24	Designing products and services	(6.55,7.75,8.82)	(3.404.89,6.38)
X25	Evaluating the effectiveness of new products/services	(6.32,7.56,8.71)	(3.34,4.95,6.57)
X26	Preparation for production	(6.77,7.92,8.95)	(4.25,5.76,7.25)
X27	Innovation development process and offering new products/services	(6.48,7.66,8.74)	(3.12,4.64,6.17)
X28	Output	(7.17,8.25,9.17)	(4.15,5.68,7.22)
X29	Innovation in the production process	(7.05,8.15,9.08)	(3.49,5.10,6.73)
X30	Services to customers	(6.49,7.67,8.75)	(3.54,5.07,6.59)
X31	Processing orders	(6.52,7.71,8.81)	(4.00,5.55,7.08)
X32	Transportation system	(6.02,7.33,8.55)	(4.01,5.54,7.05)
X33	Production scheduling	(6.82,7.97,8.98)	(2.83,4.23,5.69)
X34	Inventory planning	(6.47,7.70,8.79)	(3.54,4.94,6.34)
X35	Sales and logistics	(6.57,7.74,8.83)	(3.90,5.48,7.03)
X36	Relations with vendors	(6.32,7.54,8.68)	(3.95,5.56,7.15)
X37	Good relations with customers	(6.15,7.42,8.61)	(3.42,5,6.57)
X38	Providing services to customers	(6.67,7.82,8.86)	(4.10,5.70,7.29)
X39	Monitoring market changes and customer satisfaction	(6.77,7.92,8.95)	(3.49,5.09,6.68)
X40	Performance of customers	(5.49,6.87,8.18)	(3.5,5.09,6.69)
X41	Making the organization agile and flexible	(6.21,7.48,8.64)	(3.34,4.88,6.42)
X42	Benchmarking models of successful rivals	(7.10,8.24,9.16)	(3.46,4.96,6.43)
X43	Innovation in marketing	(7.03,8.11,9.05)	(3.27,4.87,6.48)
X44	Winning foothold in markets where rivals are successful	(7.23,8.31,9.21)	(3.46,5.08,6.71)
X45	Conquering untapped markets where rivals are still absent	(6.37,7.62,8.72)	(3.72,5.31,6.91)

X46	Signing strategic contracts	(7.09,8.19,9.11)	(3.90,5.47,7.04)
X47	Price of commodities or services	(5.59,6.98,8.30)	(3.45,4.93,6.42)
X48	Quality (the ranking earlier agreed upon)	(6.55,7.71,8.79)	(3.35,4.87,6.39)
X49	On-time delivery	(6.99,8.10,9.05)	(4.05,5.64,7.24)
X50	Financial capability of supplier to make repay debts	(6.21,7.48,8.64)	(3.87,5.40,6.92)
X51	Geographical position of supplier	(6.65,7.82,8.85)	(4.64,6.09,7.52)
X52	Continued improvement of services or commodities	(6.51,7.68,8.75)	(4.25,5.80,7.33)
X53	Creativity	(6.82,7.96,8.95)	(3.54,5.08,6.62)
X54	Electronic contracts	(7.15,8.26,9.16)	(3.41,4.98,6.53)
X55	Electronic signature	(6.95,8.07,9.03)	(3.29,4.79,6.31)
X56	Guaranteed operation	(6.81,7.93,8.95)	(3.31,4.95,6.59)
X57	Intellectual property rights law	(6.97,8.12,9.08)	(3.42,4.97,6.51)
X58	Privacy	(6.37,7.62,8.72)	(3.53,5.15,6.78)
X59	Cybercrimes	(6.97,8.09,9.05)	(3.04,4.68,6.33)
X60	Supporting consumers	(6.65,7.84,8.89)	(4.05,5.65,7.23)
X61	Customs duties	(7.06,8.17,9.10)	(3.93,5.51,7.09)

Table4. Prioritizing critical failure factors

Items	Importance	Performance	$((1-W_J)(0)R_j)$	Index	Relative Importance	Accumulative Frequency
X1	(8.43,9.28,7.36)	(3.20,4.82,6.44)	(2.27,7.55,16.9)	0.556	0.045	0.045
X33	(6.82,7.97,8.98)	(2.83,4.23,5.69)	(2.87,8.56,18.0)	0.551	0.044	0.089
X6	(7.05,8.15,9.08)	(3.01,4.68,6.36)	(2.74,8.63,18.7)	0.550	0.044	0.133
X11	(7.03,8.11,9.05)	(3.23,4.69,6.16)	(3.05,8.83,18.2)	0.550	0.044	0.177
X7	(4.06,8.15,9.08)	(3.37,4.89,6.45)	(3.07,9.03,18.9)	0.548	0.044	0.221
X2	(6.98,8.07,9.04)	(3.25,4.79,6.34)	(3.10,9.24,19.1)	0.548	0.044	0.264
X29	(7.05,8.15,9.08)	(3.49,5.10,6.73)	(3.18,9.40,19.8)	0.546	0.044	0.308
X12	(6.35,7.60,8.73)	(2.84,4.24,5.67)	(3.48,10.0,20.7)	0.543	0.044	0.352
X21	(6.47,7.72,8.80)	(3.10,4.59,6.10)	(3.59,10.1,20.6)	0.542	0.043	0.395
X27	(6.48,7.66,8.74)	(3.12,4.64,6.17)	(3.43,10.1,21.2)	0.541	0.043	0.438
X4	(6.85,7.98,8.82)	(3.87,5.41,6.93)	(3.71,10.4,21.5)	0.541	0.043	0.482
X9	(6.55,7.75,8.82)	(3.15,4.79,6.45)	(3.93,10.8,21.7)	0.541	0.043	0.525
X17	(6.47,7.66,8.75)	(3.30,4.77,6.23)	(3.97,10.8,21.8)	0.540	0.043	0.568
X10	(6.45,6.73,8.73)	(3.27,4.82,6.38)	(3.72,10.7,22.2)	0.539	0.043	0.612
X14	(6.74,7.88,8.88)	(3.83,5.42,7)	(4.01,10.9,21.9)	0.539	0.043	0.655
X42	(7.10,8.24,9.16)	(3.46,4.96,6.43)	(4.10,11.1,22.0)	0.539	0.043	0.698
X43	(7.03,8.11,9.05)	(3.27,4.87,6.48)	(3.84,10.9,22.4)	0.539	0.043	0.741
X44	(7.23,8.31,9.21)	(3.46,5.08,6.71)	(4.26,11.3,22.3)	0.539	0.043	0.784
X53	(6.82,7.96,8.95)	(3.54,5.08,6.62)	(4.13,11.4,22.6)	0.539	0.043	0.827
X54	(7.15,8.26,9.16)	(3.41,4.98,6.53)	(4.25,11.4,22.7)	0.539	0.043	0.871
X55	(6.95,8.07,9.03)	(3.29,4.79,6.31)	(3.66,10.5,21.5)	0.539	0.043	0.914
X57	(6.97,8.12,9.08)	(3.42,4.97,6.51)	(4.51,12.2,24.3)	0.539	0.043	0.957
X59	(6.97,8.09,9.05)	(3.04,4.68,6.33)	(2.89,8.71,18.6)	0.539	0.043	1.000

Table 5. Prioritizing critical success factors

| Items	Importance	Performance	$W_J(0)R_j$	Index	Relative Importance	Accumulative Frequency
X47	(5.59,6.98,8.30)	(3.45,4.93,6.42)	(5.48,14.8,28.3)	0.5140	0.0772	0.0772
X40	(5.49,6.87,8.18)	(3.5,5.09,6.69)	(6.3,15.9,30.1)	0.5137	0.0772	0.1544
X16	(5.55,7.59,8.39)	(3.31,4.89,6.48)	(5.32,11.7,28.7)	0.5136	0.0772	0.2316
X23	(6.13,7.37,8.54)	(3.50,5.16,6.81)	(5.08,13.5,26.3)	0.5127	0.0770	0.3087
X32	(6.02,7.33,8.55)	(4.01,5.54,7.05)	(5.80,14.7,28.0)	0.5120	0.0769	0.3856
X36	(6.32,7.54,8.68)	(3.95,5.56,7.15)	(5.19,13.6,26.3)	0.5116	0.0769	0.4625
X35	(6.57,7.74,8.83)	(3.90,5.48,7.03)	(4.56,12.3,24.0)	0.5115	0.0769	0.5393
X31	(6.52,7.71,8.81)	(4.00,5.55,7.08)	(4.75,12.6,24.6)	0.5114	0.0768	0.6162
X60	(6.65,7.84,8.89)	(4.05,5.65,7.23)	(4.47,12.1,24.2)	0.5111	0.0768	0.6930
X52	(6.51,7.68,8.75)	(4.25,5.80,7.33)	(5.28,13.4,25.5)	0.5110	0.0768	0.7698
X38	(6.67,7.82,8.86)	(4.10,5.70,7.29)	(4.66,12.4,24.2)	0.5110	0.0768	0.8466
X26	(6.77,7.92,8.95)	(4.25,5.76,7.25)	(4.46,11.9,23.4)	0.5108	0.0768	0.9233
X51	(6.65,7.82,8.85)	(4.64,6.09,7.52)	(5.30,13.2,25.1)	0.5103	0.0767	1.0000
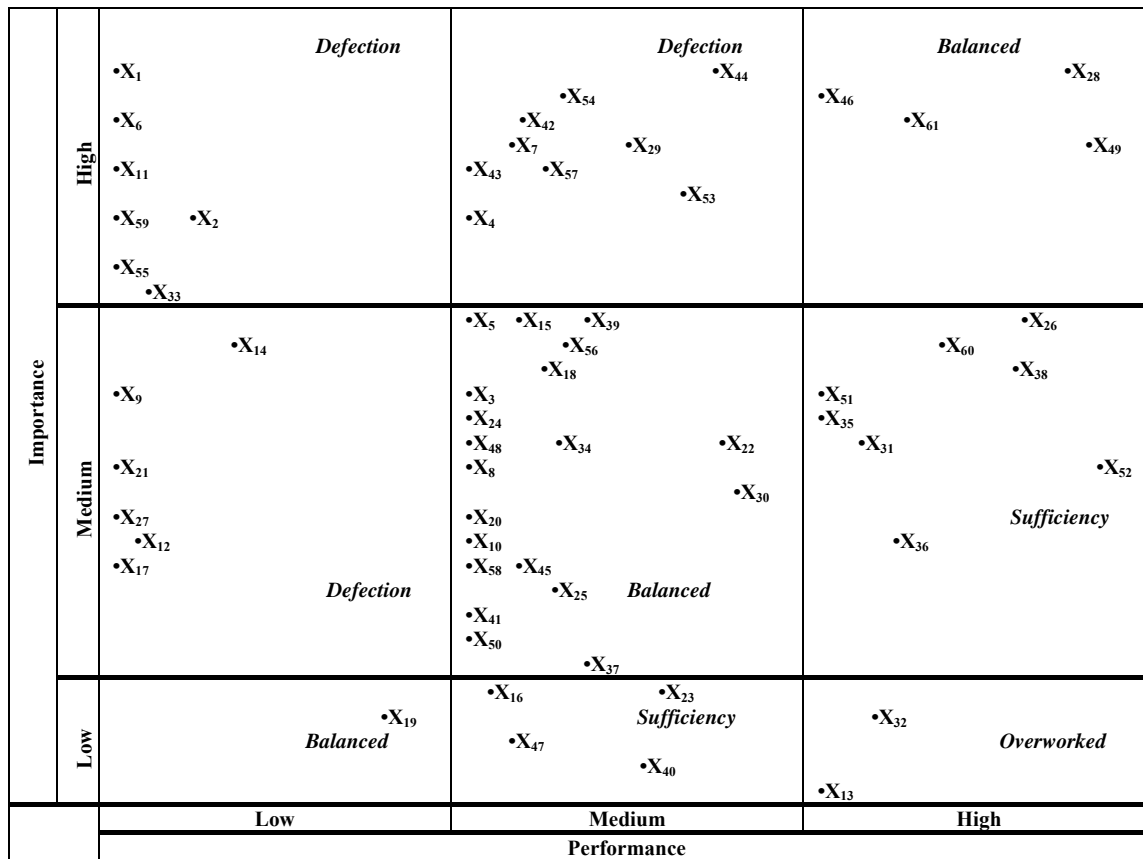
Figure 1. The Fuzzy sketch of e-business plan implementation

Theoretical and Empirical Investigation of Impact of Developmental HR Configuration on Human Capital Management

Dr Jyotirmayee Choudhury (Lecturer)

Dept of Business Administration, Utkal University

Vanivihar, Bhubaneswar, Orissa, India, 751004

Tel: 91-933-809-3142   E-mail: jyotirmayeec@gmail.com

Dr B. B. Mishra (Professor)

Dept of Business Administration, Utkal University

Vanivihar, Bhubaneswar, 751004, Orissa, India

Tel: 91-943-713-4777   E-mail: bidhu.mishra@gmail.com

Abstract

HR configurations facilitate flow of knowledge, which leads to sustainable competitive advantage. HR is always on the front line in developing the knowledge base in the organisation. HR practices are especially important in attracting, retaining and developing the skills and knowledge of employees. Hence the HR practices must be deliberately chosen and used strategically to maintain strong organisational boundaries to promote high levels of organisational and professional identity more specifically it encourages the retention of staff in a highly competitive industry. The study is carried on the basis field survey of Indian IT sector and found that a developmental HR configuration practices which is comprising of comprehensive training practices, promotion from within, developmental performance appraisal process, and skill based pay is positively related to an organisation's level of human capital.

Keywords: Developmental HR configurations, knowledge economy, intellectual talent, Human capital

1. Introduction

HR configurations facilitate flow of knowledge, which leads to sustainable competitive advantage. HR is always on the front line in developing the knowledge base in the organisation. HR practices have a central importance in knowledge intensive industries because they have immediate effect on the organisation's key resource, its stock of intellectual talent. HR practices are especially important in attracting, retaining and developing the skills and knowledge of employees. A particular challenge is the 'talent war' for specialised skills that takes place in very tight labour markets. This creates a need to devise practices which retain these employees and develop their skills to match the often fast changing nature of the product market like software industry. HR strategy drives the long term strategy of the business. Hence the HR practices must be deliberately chosen and used strategically to maintain strong organisational boundaries; to promote high levels of organisational and professional identity more specifically it encourages the retention of staff in a highly competitive industry. The study proposes that a developmental HR configuration comprising of comprehensive training practices, promotion from within, developmental performance appraisal process, and skill based pay is positively related to an organisation's level of human capital.

2. Objectives & Methodology

The study is carried out primarily on the basis of field survey of some of the organisations of Indian IT sector which is a major growing area in Indian economy. Intellectual capitals constitute the major asset of the industry but the sector is facing enormous challenges maintaining their human resource pool because rate of turnover in these sectors is very high. Talent management and retention is one of the major issues of the industry. Hence the research is intended to study the HRM practices and the designing of HR architecture of some of the selected IT organisations to attract, acquire and maintain the firm specific talent. The specific purpose of the study is to examine the degree of relation between Developmental HR configurations and human capital of those IT industries.

A stratified random technique has been adopted to select the respondents for the study. 844 respondents were selected randomly from lower, middle and upper levels management of the Indian IT organisation out of which 466 responses were used for the study. A 12 items questionnaire was developed to measure the practices of

Developmental HR configuration of the organisations under study and strength of human capital are measured by a questionnaire consisting of 8 items. Then both the instrument under study has undergone a pilot testing to test the reliability and validity of the study. Following hypothesis was formulated and tested under the research work. A multiple regression model was designed to find out the relationship between Developmental HR architecture and human capital of the organisations understudy.

$$Y = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \;.\;.\;.....\; + \beta_n Z_n + \epsilon$$

Y ($Y_1, Y_2, ... Y_n$)　　　are Dependent variables

$\beta_0, \;\; \beta_1, \beta_2, \;\; .... \beta_n$ are unknown　parameters

$Z_1, Z_2, \;\; ....\;\; Z_n$ are independent variables

ϵ ($\epsilon_1, \epsilon_2, ... \epsilon_n$) are error terms

OHC is function of ($DHRC_1, DHRC_2 \; ....DHRC_7$)

HYPOTHESIS : A developmental HR configuration, DHRC (comprised of comprehensive training practices, promotion from within, developmental performance appraisal process, and skill based pay) is positively related to an organisation's level of human capital (OHC).

3. Review of Literature

3.1 HR and Human Capital

As human capital refers to individual's knowledge, skills, and expertise, the concept is of paramount importance in any discussion of intellectual capital. Knowledge intensive firms place most importance on human capital as opposed to physical or financial capital. In a knowledge economy people is considered as revenue creators rather than costs. Knowledge of people's competence is sources of wealth creation. Human capital is valuable to the extent that it contributes to a firm's competitive advantage by improving efficiency and effectiveness, exploiting opportunities or neutralising threat (Barney, 1991; Lado, Boyd and Wright, 1992). They are the only assets that appreciate with use. Human capital is the ability of the employees to do things that ultimately make the company work and succeed. Human capital begins with human resources in the form of knowledge and skills embodied in people. The human resources of a company act as a surrogate indicator of its competence and credibility affecting the ability to attract and develop other types of resources and capabilities needed in the innovation, development and growth process (Bartel and Lichtenberg, 1987; Florin et al 2003; Pennings et al 1998).

Hambrick and Mason (1984) suggested that organisations are reflection of their top managers. Building on this work, Finkelstein and Hambrick (1996) argued the importance of human element in strategic choice and firm performance. In fact, managers in particular represent a unique organisational resource (Daily, Certo and Dalton, 2000). The human element has grown in importance because knowledge has become a critical ingredient to gain a competitive advantage, particularly in the new economy landscape (Grant & Spender, 1996). Carly Fiorina, CEO of Hewlett-Packard, emphasised this point "The most magical and tangible and ultimately the most important ingredient in the transformed landscape is people.

The literature on organisational learning, for example points out organisations, in and of themselves, do not create knowledge, people do (Argyris and Schon, 1978). Knowledge is created by individuals. An organisation cannot create knowledge on its own without individuals. Individual learning is prerequisite for organisational learning (Kim, 1993). Individual learning occurs simply by virtue of being human. As individuals learn, they increase their human capital and create knowledge that potentially forms a foundation for organisational level learning and knowledge accumulation. Knowledge stocks provide a foundation for understanding the role of human capital as a potential source of firm's core competencies (Grant & Spender, 1996). Managing people based on their human capital will allow an organisation to optimize knowledge creation- whether of new product ideas and services or of improvements in business processes (Hitt, Bierman, Shmizu and Kochhar, 2001 Lepak and Snell, 1999). Researchers have examined that, variations in HR practices is accompanied by differences in employment system as well as differences of human capital (Lepak and Snell, 1999). Through a series of unique HR practices firms may have access to valuable human resources that provide a source of competitive advantage (Colbert, 2004).

Human capital theorists have typically argued that organisations can increase their human capital by internally developing the knowledge and skills of their current employees and by attracting individuals with high knowledge and skill levels from the external labour market. That is, organisations can try to make and buy human capital. Human capital grows in two ways; when the organisation uses more of what people know and when more people know more of what is useful to the organisation (Stewart, 1997). According to resource based

view of the firm, performance differences across the firm can be attributed to the variance in firm's resources and capabilities. Resources that are valuable, unique and difficult to imitate can provide the basis for firm's competitive advantages (Barney 1991). Organisation exists for a purpose and is a deliberate arrangement of human and other resources with the aim of delivering needs, satisfying services and products as effectively and efficiently as possible, which ultimately needs optimal workforce planning.

Developmental HR configuration DHRC, As an alternative to (or in conjunction with) an acquisition configuration, organisations can enhance their human capital pool through a developmental configuration based on training and education. Human capital is unique, in that it is only asset that can be developed through various forms of education, training and on the job experience. Employee training ensures an organisation having skilled, motivated and competent workforces. Starting from orientation programs and technical training classes experienced early in one's career, to leadership development and executive coaching, training and development is deeply woven into the fabric of talent management practices. Training and education have long been the primary, focus of human capital theory. Bartel (1991) finds that firms with active human resource planning are more likely to train. Attracting the right people and providing them with learning opportunities will create right skills to meet the needs of the business now and in the future.

More recently, researchers have noted the central role of comprehensive training in firms, attempting to transform their workforces from touch labour to knowledge work (Snell and Dean, 1992). Training comprehensiveness encompasses both intensity and scope. Training intensity focuses on the depth of intervention, the duration of the programs, and the degree to which they are continuously updated. In contrast, training scope focuses on the breadth of training, the different types of training opportunities offered to employees, the utilisation of cross training and like. The common assumption is that getting people learn is largely a matter of motivation. When people have the right attitude and commitment, learning automatically follows. So companies focus on creating new organisation structures (skill-based pay, performance reviews, co-operate cultures) and the like that are designed to create motivated and committed employees (Argyris, 1993).

Training tends to be a focal point in discussions concerning the development of human capital. Training of workers contributes to an increase in the capital stocks available to the economy. Training is closely related to innovation. It upgrades the skills of employees. Human capital development is complementary to innovation. The main objective is to maximise knowledge amount by providing specialised training that is firm specific. Firm specific training will ultimately increase the uniqueness of human capital of an organisation, increasing the tacit knowledge or deep experience and understanding that cannot be found in an open labour market (Perrow, 1967). Several studies suggest that firm - specific experience (Becker, 1962 Pennings et al 1998) that is not readily available to competitors defies attempts at imitation of service offerings and thus may provide a potential source of increased performance (Snell, Youndt and Wright, 1996). People would perform better, if they have more training and more information about how the company works. It is fair to state that the best development for making talent can be possible through on the job experience.

Becker (1964) originally pointed out that under norms of rationality organisations would prefer programs that produce firm –specific skills that are non-transferable to other companies. Specific resources are unique and difficult to imitate (Barney, 1991). Specificity of skills is associated with specificity of human capital. In other words it can be stated that human capital is most valuable when it is firm specific (*Hatch* and Dyer, 2004; Hitt et al, 2001).   In order to capitalise on such training investments, as well as encourage employees to develop firm specific skills, many theorists suggested that organisation should utilise promotion within, or internal labour markets. In Koch and McGrath (1996) speaks "A firm that pays for training and that subsequently fails to promote from within is arguably failing to capitalise on its investments".

Broadening this HR configuration further, supportive performance is also espoused to facilitate employee development. One way to generate firm specific resources is human capital development (Lepak and Snell 1999). Although performance appraisal can focus on administrative as well as developmental functions, it is the developmental aspect that is most expected to influence learning and skill enhancement. Learning is being positioned as key strategic element in an organisation's success, and much more than a tactic aimed at improving job performance. Senge described a learning organisations as one, "where people continually expand their capacity to create the results they truly desire, when new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together" (Senge, 1994).

Compensation systems, particularly those associated with skill and knowledge based pay, are also likely to play a significant role in motivating employees to increase their human capital. Treating the employees fairly in all

respect without any discrimination, specifically providing skill based pay helps organisations in motivating and retaining employees.   When companies link pay to the knowledge, skills, and abilities of their workers, they hope to direct the attention of their employees to developmental opportunities and to encourage skill - seeking behaviour (Murray and Gerhart, 1998).

4. Empirical Evidences

As shown in table1 demographic profiles of the respondents consist of small, medium, and large organisation, where respondents from large organisation constitute almost half of the total population in the study. Female participants in the study was one third where as male participants consisted of two third of the total population. Age- wise distribution depicts 26-34 year age group dominates in the study consisting of more than 50% of the total sample. The respondents having 5-10 years of experience at current organisation is very well present in the study consisting of 51% of the total sample.

As described in table 2 developmental configurations is found to be significantly related with human capital with $R^2 = 0.776$. So the linear regression model set under the study is very well fit with $R^2 = 0.7$

5. Discussion

The impact of human resource management (HRM) policies and practices on performance of the firm is an important topic in the field of human resource management, industrial relations, and industrial and organisational psychology (Boudreau, 1991; Jones and Wright, 1992, *Jeff S. Margulies* & kleiner, 1995). "The *use of high performance work practices*, including comprehensive employee recruitment and selection procedure, incentive compensation and performance management system, and extensive employee involvement and training, can improve the knowledge, skill and abilities of firm's current and potential employees, increase their motivation, reduce shirking, and enhance retention of quality employees while encouraging non performers to leave the firm. Today, competitive advantage depends on intangible assets especially human capital. People and their efforts are what make one organisation different from its competitors but the management of man" is a very important and challenging job, because it is a job, not of managing 'men' but of administering a social system. The present study is based on the theory that HR systems are fundamental in the development of human capital and found that comprehensive training and development efforts were very closely related to an organisation level of human capital.

6. Conclusion

People are the organisations greatest asset, providing the intellectual capital that drives differentiation and value added services. Organisations where growth initiatives are considered, the first resource that needs to grow and flourish is actual human resources in that organisation. Growth from macro perspectives is possible only when micro activities are initiated by the organisations. To keep pace with globalisation modern organisations have to deal with each individual differently and tactfully, thereby fulfilling the demands of employee as well as taking steps towards growth plan of the organisation.

Since the study is carried on in a hi-tech and skill based industries in which application of knowledge or skill determines productivity, performance and competitiveness, it is found that Skill-based Pay (SBP) is an innovative reward system that promotes workforce flexibility by rewarding individuals based on the number, type, and depth of skills mastered. Again it is found that providing promotion from within has also significant effect on human capital development. It increases the motivation level of current employees who already know the business and they take the ownership of getting things done. Hence they are the best bet for filling the position with expertise. So far as comprehensive training practices are concerned since the organisations understudy are knowledge based industries , intellectual capital, especially human capital are the major asset of the company, the organisation continuously invest on comprehensive training practices like seminar, conferences, coaching, counselling and mentoring activities for people development. Learning constitutes the core of the organisation culture. The organisations under study are practising 360 degree performance appraisal and 360-degree review of the employees' performance very efficiently .It is considered as one of the most credible performance appraisal methods by which personal skills of the employees are evaluated based on their learning and analytical ability, communication skills, decision making, change management, planning and organizing skills. The system is a good system where everybody succeeds. Hence it can be concluded that though development is too important to gauge in the human supply chain it is very crucial in nature in today's economy. All the learning initiatives have to be taken at each level of the organisational activity for fullest potential development of people and translating talent into value.

References

Argyris, C. (1993). *Knowledge for Action*, Jossey-Bass, San Francisco, CA.

Argyris, C., & Schön, D. (1978). *Organizational learning*: A theory of action perspective, Reading, Mass: Addison Wesley, MA, USA

Barney, J. (1991). "Firm Resources and Sustained Competitive Advantage," *Journal of Management Studies*, vol 17, 1, 99-120

Bartel Ann P. (1991). "Productivity Gains from the Implementation of Employee Training Programs," NBER (November) Working paper series N0 3893, 1-32

Bartel, Ann P. and Frank R. Lichtenberg, (1987). "The Comparative Advantage of Educated Workers in Implementing New Technology," *Review of economics and Statistics*., Vol LXIX,1, 1-11

Becker G. S. (1964.). "*Human Capital:* A Theoretical and Empirical Analysis, with Special Reference to Education." Chicago, University of Chicago Press

Becker G. S., (1962, "Investment in Human capital: A theoretical Analysis", *journal of political economy*, 70 , supplement, 9-49

Boudreau, J. M. (1991). "Utility analysis for decision making in human resource management", In M. Dunnette & L. Hough (Eds). *Handbook of industrial and organizational psychology* , 2, 2, 621–745

Colbert B. A.(2004). "The complex resource-based view: Implications for theory and practice in strategic human resource management", *Academy of Management Review*, 29, 3, 341 - 358.

Daily, C.M., Certo, S.T., & Dalton, D.R. (2000). "International experience in the executive suite: The path to prosperity: *Strategic Management Journal*", l, 21, 515-523

Finkelstein, S. and Hambrick D. C. (1996). *Strategic Leadership*: Top Executives and Their Effects on Organizations, West, Ohio, USA

Florin J. , Lubatkin M. and Schulze M. ,(2003). "A Social Capital Model of High-Growth Ventures", *Academy of Management*, 46, 3, 374-384

Grant, Rob, Spender J. C., (1996). "Knowledge and the firm: An overview", *Strategic Management Journal,* 17, (Winter Special Issue). 3 - 9.

Hambrick, D. C., Mason, P. A. (1984). "Upper echelons: The organization as a reflection of its top managers", *Academy of Management Review*, 9,2, 193-206

Hatch, N.W., and Dyer, J. H., (2004). "Human Capital and Learning as a Source of Sustainable Competitive Advantage," *Strategic Management Journal*, 25.   12, 1155-1178

Hitt M.A., Duane I. R., Michael S. C., Sexton D. L. (2001). "Strategic Entrepreneurship- Entrepreneurial Strategies for Wealth Creation," *Strategic Management Journal*, 22.6/7, 479 - 491.

Hitt, M. A., Bierman, L., Shimizu, K. and Kochhar, R. (2001). "Direct and Moderating Effects of Human Capital on Strategy and Performance in Professional Service Firms - A Resource-Based Perspective," *Academy of Management Journal*, 44, 1,13 - 28.

Jones, G.R., Wright, P.M. (1992). "An economic approach to conceptualizing the utility of human resource management practices", In Rowland, K., Ferris, G. (Eds). *Research in Personnel & Human Resources Management*, 10, 2, 271-299.

Kang, S., Morris, S. S., and Snell, S. A. (2007). Relational Archetypes, Organisational Learning, and Value Creation: Extending the Human Resource Architecture," *Academy of Management Review*, 32.1, 236 - 256.

Kim, Daniel H. (1993). "The Link between Individual and Organizational Learning". *Sloan Management Review* 35, 1, 37-50.

Koch, M., and McGrath, R. G., (1996). "Improving Labour Productivity: Human Resource Management Policies Do Matter," Strategic Management Journal, 17, 5, .335 - 354.

Lado, A. A, Wilson, M. C. (1994). "Human resource systems and sustained competitive advantage: A competency-based perspective", *Academy of Management Review*, 19, 2, 699 – 727.

Lado, A., Boyd, N. G., Wright, P. (1992). "A Competency-Based Model of Sustainable Competitive Advantage Toward a Conceptual Integration", *Journal of Management, 18*, 1,77-91.

Lepak , D.P. and Snell S.A(1999): The human resource architecture: towards a theory of Human capital allocation and development, *Academy of management review*, 24, 1, 31-48.

Margulies J. S, Kleiner B. H. (1995). "New Designs of Work Groups: Applications of Empowerment" , *Empowerment in Organisations*, 3.2, 1 -18.

Murray, B. and Gerhart, B., (1998). "An Empirical Analysis of a Skill Based Pay Programme and Plant Performance Outcomes," *Academy of Management Journal*, 41.1, 68 - 78.

Pennings, J. M., Lee, K. and Witteloostuijn, A., Van. (1998). Human Capital, Social Capital and Firm Dissolution," *Academy of Management Journal*, 41, 4, 425 - 440.

Perrow C. (1967). "A framework for the comparative analysis of organisations", *American sociological review*, 32, 2,194-208

Rob G., Spender J. C. (1996). "Knowledge and the firm: An overview", *Strategic Management Journal*, 17(Winter Special Issue). 3 - 9

Senge P. (1994). The Fifth Discipline: 'The Art & Practice of the Learning Organization: Doubleday, New York.

Snell, S. A., and Dean, J. W., Jr. (1992). "Integrated Manufacturing and Human Resource Management: A Human Capital Perspective," *Academy of Management Journal*, 35, 2, 467 - 504.

Stewart, T. (1997). *Intellectual Capital*: The New Wealth of Organisations, Doubleday Business, New Work, USA

Youndt, M. A., and Snell, S.A. (2004). "Human Resource Configurations, Intellectual Capital, and Organisational Performance," *Journal of Managerial Issues*, 16, 3, 337 - 361.

Youndt, M.; Snell, S. A., Dean, J. W., Lepak, D. P., (1996). "Human Resource Management, Manufacturing Strategy, and Firm Performance," *Academy of Management Journal*, 39, 4, 836 – 866

Acknowledgement

Table 1. Demographic Analysis

Parameter	Group	#	%
Size	Small	143	30.7
	Medium	108	23.2
	Large	215	46.1
Sex	Female	172	36.91
	Male	294	63.09
Role	Senior Management	106	22.75
	Middle Management	132	28.33
	Junior Management	142	30.47
	Non Management Exec	86	18.45
Age	26-	56	12.02
	26-34	246	52.78
	34-42	92	19.74
	42-50	52	11.16
	50+	20	4.3
Organisation Experience	2yr-	106	22.74
	2 to 5	78	16.74
	5 to 10	239	51.28
	10 to 20	33	7.08
	20+	10	2.16
Total Experience	2yr-	30	6.44
	2 to 5	94	20.17
	5 to 10	168	36.05
	10 to 20	**138**	**29.62**
	20+	**36**	**7.72**
Total		**466**	**100**

Table 2. Regression Analysis of Developmental HR Configurations & HC

Developmental H R Configurations & human capital				
	Multiple R	**R^2**	**Adjusted R^2**	**Std. Error**
Developmental(D)	0.881(a)	0.776	0.776	0.2406

Study on the Intellectual Property Protection Mechanism in the Technical Innovation of Enterprise

Yurong Chen & Weixing Wang

School of Economics & Management, Changzhou University, Changzhou 213164, China

E-mail: cyrpzh@126.com

Abstract

Enterprise is the main body of technical innovation, and the main body of the creation, protection, and implementation of intellectual property. The intellectual property protection and management run through the whole process of technical innovation. The problems existing in the intellectual property protection of the innovational results in the enterprise technical innovation are analyzed, and corresponding countermeasures are suggested in this article.

Keywords: Technical innovation, Knowledge property, Intangible assets

Technical innovation and intellectual property protection are two important parts to promote the development of modern enterprises. By technical innovation, enterprises could acquire, allocate, and create technical and intellectual resources, cultivate and enhance their core technologies and capacities, and establish their competitive advantages. The intellectual property protection emphasizes that the intellectual assets of the enterprise protected by the laws should not be invaded by others. Innovation is the headspring of intellectual property, and intellectual property protection is the driver of innovation. To cultivate the core competitive ability of enterprise is the key to implement the intellectual property protection of the technical and innovational results for enterprises.

1. Intellectual property protection promotes the technical innovation of enterprise

Intellectual property protection is one of basic premises to ensure the rights, capitalization, commercialization, and marketization of the technical and innovational results. The technical and innovational results needs the protection of intellectual property, and the perfection of the intellectual property protection system will largely encourage and drive the technical innovation, and provide a interior drive and a exterior fair competitive and legal environment for the technical innovation, which is very important to promote the technical innovation.

1.1 The intellectual property protection system is the most effective encouragement mechanism of technical innovation

The development history of science, technology, and economy and the experiences of various countries indicate that the intellectual property system uses the legal and economic measures to ensure that the originator could enjoy the exclusive right for his technical and innovational result in certain term by the form of national laws. Without the patentee's permission, others could not use this invention, so the originator could return the investment of the invention and obtain the extra profit by using or allowing others to use this invention. But the acquirement of the extra profit is after the marketization of the technical innovation, and the amount of the extra profit is linked with the market effect of technical innovation, which is like adding the benefit oil to the genius fire.

1.2 The intellectual property protection system is the legal protection mechanism of technical innovation

It is better to say that the competition among countries is the economic competition, than say that the competition is the competition of science, technology, and talents, and the essential of the talent competition is the competition of intellectual property, and who possesses independent intellectual property in certain one technical domain will obtain the control right in this domain, and the intellectual property is being one of the most important resources in the world. To promote the development of technical innovation, a fair competitive rule must be established, and a fairly competitive environment must the built. The essential of the intellectual property system is to encourage and establish the fair competition based on technical innovation, and it would

establish the fairly competitive rule by the patent law, the brand law, the copyright law, and the anti-unfair competition law. At the same time, by the legal form, the intellectual property system will legally protect the patent right, the brand right, and the copyright according to relative laws. For those behaviors disobeying the intellectual property law, various governments all would punish them by the administration form or the judicial form.

1.3 The intellectual property protection system is the leading mechanism of technical innovation

The intellectual property system could provide not only powerful drive and effective legal guarantee for technical innovation, but also scientific reference to reasonably allocate technical innovation resources and correctly select the direction and approach of technical innovation. The patent laws in various countries all regulated that the invention and creation applying patent must publish the invention content by sufficient and complete specification in legal term. These up-to-date technical intelligences will be widely diffused in the world. The patent literatures are the historical record of human technical innovation, but the treasure of human intelligent results. Technical innovation staff could know and grasp the level and direction of the up-to-date technical innovation in the world, and select right direction and approach of technical innovation, effectively allocate the resources of technical innovation, enhance the start and level of technical innovation, avoid the waste of human resource, financial resource, and material resource, and create the up-to-date technologies and products on the "giants'" shoulders.

1.4 The intellectual property protection system is the accelerating mechanism of technical innovation industrialization

Because of the novelty, the practicability, and the creativity, the intellectual property system could ensure that the patentee of the invention has twenty years' protection term in laws, and in this term, the illegal competition will be eliminated, so the implementation of the patent technology is more advantageous than the implementation of other technologies, and the originator can start the company himself, or go to the industrial and mining enterprises with his own patent and transfer the patent with compensation, and many new industries supported by the patent technologies will be gradually formed. The practice has proved that the intellectual property system has been the accelerator of the industrialization of technical innovation.

2. Technical innovation is the creation activity of intellectual property

Technical innovation is the process including the research and formation of new invention and creation, the application and implementation of new invention and creation, the commercialization and industrialization diffusion of new technology, and the commercialization of new technical results. In various stages and parts of the enterprise technical innovation, the intellectual property protection is being generated and filtered, and the technical innovation is closely related with the intellectual property protection, and both of them will drive the flourish development of the enterprise in the drastic market competition.

2.1 The intellectual property protection in the planning and evaluation stage of technical innovation

The planning and evaluation stage is the start of technical innovation, and it means the innovation subject begin to think the primary consideration, conception, and evaluation about the scientific foreground, the production method, the technical project, and the technical flow under the influence of various innovational factors, and discover valuable new technologies, methods, organizations, and market, and prepare for relative creative activities. In this stage, many creative intellectual activities such as information acquisition, materials induction, market analysis, and value judgment are needed, so large numerous of intellectual properties will occur, such as the actuality and prediction of certain technology by information acquisition and processing, the market report of certain production by the market analysis, and the relative industrial competition trend and profitable foreground by the evaluation and prediction, which all have large commercial values, and some of them could form the intellectual properties such as copyright and commercial secrets, and are very important to confirm the technical object, the product direction, and the competitive strategy for the enterprises in the starting stage.

2.2 The intellectual property protection in the research and development stage of technical innovation

By research and development, new product, technologies, and other technical results could be obtained, and these results should be applied and protected by the form of patent, and be saved as the innovation subject's commercial secrets. In addition, innovation subject's all technical materials and research and development result could be protected by the copyright. Except for self-research and development of innovation subject, innovation subject could cooperate with scientific research institutions and colleges, and these activities could produce the intellectual properties such as patent, copyright, and commercial secrete, and the different is that these units would share the rights of intellectual property according to the arrangement and laws. In the cooperation and

development process, the intellectual property ownership must be confirmed in the innovation, and both parties in the cooperation should sign the contract, confirm the authorship right, the ownership, the application right, and the using right of the results to avoid the intellectual property right disputes. Except for above forms, the intellectual properties will also be produced in the technical introduction and technical trade, and it is also a mode to obtain the intellectual property for modern enterprise.

2.3 The intellectual property protection in the experiment and trial-production stage of technical innovation

The generation and commercialization implementation of a new technology need a series of experiments, and before the scale production, the trial-production should be implemented because of the subjective process of the mature process and the production implementation of technology. This process contains the intellectual properties such as the invention and design patent, the copyright, and the technical secret, for example, the certain product obtained by the research and experiment, or the method of manufacturing certain product, and the appearance design products all could be the patents to apply, and the key technologies, the manufacturing methods, and prescriptions could be managed by the form of technical secrets in the nonpublic state, and the technical parameters, the performance explanation, and the design drawings of the primary products formed in this stage could be protected according to the copyright law, and these results could form the intellectual properties which could be protected.

2.4 The intellectual property protection in the production and distribution stage of technical innovation

By the research and development and trail production, this technical project and level have entered into the mature stage, and the innovation subject could implement large numbers of commercialization production and distribution, and this stage is the most important formation stage of the intellectual property. The mass-production level and the commercialization level are closely related with the intellectual property management level in this stage. Except for the intellectual properties such as technical knack, copyright, and commercial secretes, the most important thing in this stage is to produce and protect the trademark right. Trademark represents the quality and reputation of the special product in the special enterprise, and it is very important and valuable to develop the market, maintain the reputation, and ensure the distribution for the enterprise. Generally, enterprises will register the trademark for their products in the production and distribution, so in this stage, this important intellectual property, i.e. the trademark, will certainly form.

2.5 The intellectual property protection in the information diffusion of technical innovation

Good intellectual property protection environment is propitious to diffuse the results of technical innovation, or else, these technologies should be kept in secrete, but the technologies in secrete are disadvantageous. First, others would not obtain the information, and may repetitively research and develop. Second, once the secret measures are not effective, others will obtain the knowledge by visit, learning, negotiation, and reverse engineering, and the originator will not obtain the extra profit. Third, the secret technology could not compete with the trading of similar technologies to the third party. But the technologies protected by the intellectual property could be published, because the patent right is an exclusive right, and any others could not use it for the production and operation, but the patent technologies could be published under the legal protection, and anyone could check it for the scientific research and enhance the start and speed of scientific research.

2.6 The intellectual property protection in the asset management of technical innovation

The result of technical innovation could form the intellectual property by legal registration and authorization, and become the intangible assets to embody the strength of enterprise. Technical innovation could also produce concealed and nonpublic knowledge such as technical secrets, and these innovations belong to the interior knowledge assets, and must be protected by the management of interior knowledge assets.

3. Intellectual property protection in the technical innovation process

3.1 Problems existing in the intellectual property protection of technical innovation process

3.1.1 Technical innovation body's ideological cognition is not clear

Up to now, some technical innovational subjects have not known the intellectual property protection problems clearly in the technical innovational process. For example, they don't know what the intellectual property is, and don't know the intellectual property law, and don't know the intellectual property could be formed in the technical innovational process, and cannot acquire the intellectual property in the technical innovation process, and they don't know and will not protect their intellectual property, and will not and would not protect others' intellectual property. And they will not only ignore the intellectual property in the cultural domain, but also don't emphasize the intellectual property in the decision.

3.1.2 The investment of intellectual property protection in the technical innovation process is deficient

In China, the investments of financial and human resources to protect the intellectual property in the technical innovational process have not adapted the international competition of the drastic technical innovation and intellectual property. There are many relative institutions in foreign countries, but not in China, such as the independent intellectual property court and the self-disciplined industrial intellectual property protection association. The manning quotas in the intellectual property protection institution are still too small, and the technical innovational subjects' investment is too less, including the corresponding investments in the intellectual property management and protection departments. And the senior talents or professional talents directly engaging in the intellectual property protection in the technical innovational subject or relative intellectual property management, agency, and protection institutions are very deficient.

3.1.3 The agency between technical innovation and intellectual property is weak

At present, there are few social organizations, institutions, personnel, and service projects providing the intellectual property service between the government department or the judicial department with the intellectual innovational subject or the intellectual property oblige, and the service level is very low. The foreign and domestic intellectual property communication and cooperation whether on the layer of technical innovation subject or the agency institution or on the layer of administration management and the justice are almost hard to adapt the requirements of intellectual property protection in the technical innovation process.

3.1.4 Technical innovation body lacks in protection strategies or the target is not practical

Many technical innovational subjects or intellectual property obliges including enterprises, colleges, graduate schools, and individuals in special conditions will not plan the acquisition, utilization, management, and protection of intellectual property in the technical innovational process. And many targets of the intellectual innovational subjects will not accord with the requirements of the times, and fall away the maximization of the economic and social benefits.

3.1.5 The exterior protection measures are deficient in the technical innovation process

The macro management of technical innovation or the intellectual property protection department of the state have not harmonized the intellectual property protection strategies or polices systematically and properly in time, or adjusted and confirmed these strategies or polices from the view of the benefit maximization of different right subjects or the promotion of technical innovation.

3.2 Countermeasures of the intellectual property protection in the technical innovation process

3.2.1 Enhancing the strategic consciousness of intellectual property protection

Enterprises should develop the strategic research of intellectual property surrounding the total strategic subject, and form their own core technologies or products. The patent management should run through the whole process of technical innovation, and largely enhance the ability of utilizing the patent system and the level of protecting the patent.

3.2.2 Enhancing the management level of intellectual protection

Combining with the practice of production and operation, the government should institute the work plan of intellectual property, and confirm the organization institution, the management responsibility, the management range, the employees' obligation, and relative legal responsibilities of the intellectual property protection work. By effective networking management, enterprises could enhance the level of whole service, including the quantity, quantity, and result transformation of intellectual property.

3.2.3 Establishing the encouragement and limitation mechanism of intellectual property

The government should build good enterprise development environment to encourage the innovation of science and technology, carry out the policy that the patent technology participates in the distribution as the production factor, guarantee the patent originators to obtain their own returns, and further stimulate scientific research personnel's enthusiasm. The government should also grasp the talent flow, and strengthen the management of those persons assuming the scientific research tasks, and constitute strict limitation systems. For those key technologies about the enterprises, relative enterprises can apply the secret protection of enterprise technology without the patent application, and these core technologies could be controlled dispersedly, i.e. a set of complete technology should be grasped by many individuals or organizations, and the key department should be managed in different grades to ensure the safety of the core technology.

3.2.4 Quickening the transformation speed of intellectual property results

The successful transformation of scientific results is the best protection to the intellectual property, and the final

target of the intellectual property management. Enterprises should adopt effective measures to largely push the result transformation. The government should create interior and exterior conditions for the result transformation, and provide the opportunity for them to use their talents, and transform the scientific research result into the practical productivity.

References

Fu, Jiayi. (1998). *Theory of Technical Innovation.* Beijing: Tsinghua University Press.

Li, Peilin. (2008). Study on the linkage of technical innovation ability and enterprise's Intellectual property strategy. *Science and Technology Management Research.* No.7.

Liu, Chuntian. (2003). *Intellectual Property Law.* Beijing: China Renmin University Press.

Sheng, Hui. (2008). The Protective System of Intellectual Property Rights and Promoting Technical Innovation of Corporation. *Technoeconomics & Management Research.* No.4.

Wang, Deying. (2008). A Study on Enterprise Technological Innovation Dynamic System Based on Intellectual Property System. *Science & Technology Progress and Policy.* No.20.

Entrepreneurial Orientation as a Panacea for the Ebbing Productivity in Nigerian Small and Medium Enterprises: A Theoretical Perspective

Prof. Amos S. Ogunsiji

Department of Management and Accounting

Ladoke Akintola University of Technology, Ogbomoso, Oyo State, Nigeria

E-mail: amosogunsiji@yahoo.com

Ladanu, William Kayode (Corresponding author)

Department of Business Administration, Bowen University, Iwo, Osun State, Nigeria

P.M.B. 284, IWO, OSUN STATE, NIGERIA

Tel: 234-803-502-8971   E-mail: kayladanu@yahoo.com

Abstract

Small and Medium enterprises are widely distributed in the Nigerian economy and they are major contributors to the socio-economic development of the nation. However, some salient features of these enterprises and the dynamic nature of a highly global economy makes the effective and efficient contributions of these enterprises unattainable. The central argument of this paper is that entrepreneurial orientation is the panacea to this ebbing productivity.

Accordingly, the paper provides deeper understanding of the cross-functional activities in the behaviour-embedded nature of innovation, proactivity, autonomy, risk-taking propensity and competitive aggressiveness.

Keywords: Entrepreneurial Orientation, Productivity, Small and Medium Enterprises, Synergistic Management

1. Introduction

In many developing countries, the Small and Medium Enterprises (SMEs) constitute the bulk of the industrial base and contribute significantly to their exports as well as to their GDP or GNP (Kharbanda, 2001). In Nigeria, the Small and Medium Enterprises constitute 99 percent of the enterprises in the country. (OECD, 1998). Further, they account for 70 percent of national industrial employment. (Adebusuyi, 1997). These enterprises have immense contributions to economic growth, job creation and industrial development (OECD, 2004; Hallberg, 2000; Carree and Thurik, 2005; NIPC, 2004). According to Beyene (2002), "the potentials of the small and medium enterprises are manifested in their labour-intensive nature, income-generating possibilities, capital saving capacity, potential use of local resources and reliance on few imports, flexibility, innovativeness and strong linkages with the other sectors of the economy." This basically explains the reason why SMEs are the darling of policy makers and governments all over the world (Beyene, 2002; Ladanu, 2009).

In Nigeria, the governments at various levels have formed different policy incentives aimed at boosting the performance of small businesses in order to reduce the level of poverty and enhance economic development (Akande and Ojokuku, 2008). Accordingly, the Nigerian governments acting alone and sometimes in concert with international agencies had formulated and implemented policies and programs that center on finance, training and the provision of infrastructure for the SMEs. Inyang and Enuoh (2009) opine most researchers concentrated on finance as the major impediment to successful entrepreneurship or small scale business.

The above are the manifestations of the importance and shortcomings of the SMEs. The firms operate in turbulent environments which call for great tenacity on their resources in order to take advantage of emerging opportunities (Tecce, Pisano, and Schuen, 1997). In this context, the firm's strategy, which, according to Wiklund and Shepherd (2003), is "conceptualised in terms of its entrepreneurial orientation", becomes important. Miller (1983) considers a firm's entrepreneurial orientation to consist of its risk-taking propensity, proactiveness and innovation. Lumpkin and Dess (1996) added the dimensions of competitive aggressiveness and autonomy. A number of researches suggest a positive association of entrepreneurial orientation with financial performance. (Miller, 1983; Zahra, 1993; Covin and Slevin, 1989). Also, there abounds, in extant literature, theoretical evidences that relate the effects of entrepreneurship on the economy. (Baumol, 1993; Lumpkin and Dess, 1996). Entrepreneurship is missing from most empirical models explaining economic growth (Wong, Ho, and Autio,

2005). Consequently, entrepreneurial orientation has not been put in its proper place in respect of firm productivity.

The objective of this paper is to critically examine the state of the small and medium enterprises in Nigeria and highlight the import of entrepreneurial orientation as the solution to the productivity problem of these SMEs.

This paper makes the following contributions to the extant literature in the following ways. First, it furthers our understanding of how a firm's strategic orientation (in this case the entrepreneurial orientation) influences the productivity and hence the performance of the firm. A better understanding of some underlying entrepreneurial orientation dimensions that determine or enhance productivity is significant. Second, by considering the potential influences of entrepreneurial orientation as a set of behaviours exhibited by the entrepreneurs on firm productivity, a better understanding of how entrepreneurial orientation drives and is being implemented across the many functional activities within the firm is attained.

2. Characteristics and State of SMEs in the Nigerian Economy

The SMEs are the arrowheads of industrialisation in many developing as well as developed economies. A major step to understanding SMEs is to have a definition. However, there is no widely accepted definition of SMEs in Africa (Beyene, 2002). In Nigeria, the definition has changed from time to time and differs from one agency to another, using variables that range from the number of employees, capital employed and turnover. Table 1.

This paper considers, as satisfactory, the definition of SMEs by the Small and Medium Industries Equity Investment Scheme (SMIEIS) which defines SMEs as enterprises with a total capital employed not less than =N=1.5million, but not exceeding =N=200million, including working capital, but excluding cost of land and/or with a staff strength of not less than 10 and not more than 300. The SMIEIS is a scheme set up by the Banker's Committee, a body that consists of representatives of banks in Nigeria. The scheme requires all banks to set aside 10 percent of their Profit before Tax (PBT) for participation as equity investments in Small and Medium Enterprises in the country.

The Small and Medium Enterprises are widely distributed in many economies. The Small and Medium Enterprises represent the fountainhead of vitality for the industrialisation process of the economy (Ogun and Anyanwu, 1999). In Nigeria, Aluko, Oguntoye, and Afonja (1975) characterised SMEs as follows:

1) "The same manager or proprietor finds it difficult to raise short or long term capital from the organized capital market, instead relies on personal savings or loans from friends, relatives or money lenders.

2) The same manager/proprietor handles/supervises the production, financing, marketing and personnel functions of the enterprise.

3) The manager/proprietor's vision is confined to the local community in which he carries on his line of business. There is little or no knowledge of the wider or distant markets.

4) The rate of business mortality is high probably because of strong mutual distrust and dominance of the sole proprietor which militates against the formation of partnerships or limited liability companies.

5) The enterprise is generally poorly equipped as the small scale industrialist feels reluctant to accept outside help owing to prejudice or fear that information about the enterprise might reach the tax authorities or a nearby competitor.

6) Little or no account of business costs or revenue is kept and the banking system is hardly utilized. The result is that banking facilities for business financing and expansion are extended to only very few of the industrialists.

7) The level of education of the proprietor is usually very low with a consequent low level of business management technique, skill or market information."

The above features of the small scale enterprises in Nigeria, succinctly point to the necessity for more entrepreneurial approach to the management of these enterprises.

Notwithstanding these characteristics of the Small and Medium Enterprises in Nigeria, these enterprises are highly important to the extent that they are expected among others,

to:

a. Provide the avenue for the birth and growth of indigenous entrepreneurs (Ogun and Anyanwu, 1999).
b. Serve as a conduit for the mobilisation of savings into the real sector of the economy.
c. Being labour-intensive, provide jobs for the unemployed,

d.   Accentuate the even and balance development of the nation.

3. Entrepreneurial Orientation and the Productivity of SMEs in Nigeria.

Many SMEs, particularly in the developing countries face monumental challenges. Despite the lofty objectives of policies and practitioners, the results from SME programs and policies are often disappointing and the potential contributions that vigorous small-scale industry could make to development programs are not realised (Lebell, Schultz, and Weston, 1974). In Nigeria Ogunsiji (2002a) identified these challenges to include

a.   Poor utility services

b.   Poor managerial and technical skills development

c.   "Low productivity and low-quality output, particularly of the manufacturing sector" (Adegbite et al., 2007).

d.   Poor access to and in some cases inadequate finance, which is considered the most worrisome and tops the list for most SMEs (Beyene, 2002; Oludimu and Ogunsiji, 1994; Ogunsiji, 2002a; 2004; 2005; Akande and Ojokuku, 2008; Olutunla and Obamuyi, 2008).

In Nigeria, as well as in other developing economies, a number of measures that include technical/managerial training, provision of credit facilities (establishment of various financial institutions), establishment of industrial estates and of recent, the establishment of business incubators (Adegbite, 2001), physical facilities in many of other developmental plans are being put in place to ameliorate these challenges, (Ogunsiji, 2002a; 2004) in separate studies. Beyene (2002), opines that "a government that is genuinely committed to the development of SMEs needs to ensure a support strategy that judiciously combines entrepreneurial, technological and managerial competence with real market opportunities and access to resources." The entrepreneur is a significant phenomenon at ensuring improved productivity and hence increased performance of the Small and Medium Enterprises in Nigeria. Particularly considering the fact that they operate in highly turbulent environment with various handicaps especially finance. Productivity, according to Roberts and Tybout (1997) refers to "the measure of the relationship between the quantity of output and the quantity of resources needed in producing a particular good or service." It is most times considered as output per unit of input. Therefore, achieving increased productivity or the same volume of output using less resources is paramount to managers. This is achieveable through what Ogunsiji (2002b) referred to as innovative entrepreneurship which breeds distinctive competences difficulty-to-imitate.

According to Ogunsiji and Anene (1994) "making work and resources productive and the worker an achiever is the greatest challenge to the management task." (Table 2). The industrial capacity utilisation of the Nigerian enterprises, particularly in the manufacturing sector, is also very low. (Table 3).

This below average syndrome may be improved applying adaptive strategic management process through competence building and competence leveraging and future-focused innovation on a continuous basis. (Ogunsiji, 2004; 2005)

The entrepreneur is undoubtedly vital aspect of production. The one who, according to Gartner (1985), creates a new organisation or founds a new business venture. The entrepreneur, in many cases, as the gatekeeper, has the sole responsibility to properly source and utilise the organisation's resources and capabilities through matched strategies to a productive end. According to Yu (2001), "the inability to separate ownership and control in many SMEs suggests the business owners are sole responsible for the development and growth of their enterprises." Some researchers in describing entrepreneurs have considered the traits and characteristics that make an individual act entrepreneurial. Some traits that have been associated with successful entrepreneurs in extant literature include a high need for achievement, propensity for risk-taking and an internal locus of control. (Miner, 1997; McClelland, 1987). "In today's global economy, SMEs that are active players make special efforts to search for diversified growth by pursuing innovation-based production and an open-minded management capable of engaging the appropriate specialised resources, for example, ICTs". (Lal, 2007). Also, Lewis (1977) opines that "what Nigerian entrepreneurs lack the most is managerial competence." The entrepreneur is at the heart of many SMEs in Nigeria and as such determines its strategy through his/her orientation. Lumpkin and Dess (1996) consider entrepreneurial orientation as "the methods, practices and decision making styles managers' use". It is also considered to be a behavioral phenomenon with SMEs being classified as conservative or highly entrepreneurial (Swierczek and Ha, 2003). Entrepreneurial orientation is multidimensional in nature. Miller (1983) considered these dimensions as proactivity, innovation and the propensity to take risk. However, Lumpkin and Dess (1996) included the dimensions of autonomy and competitive aggressiveness to the entrepreneurial orientation construct. While Ogunsiji (2002a) identified ability to identify business opportunities and act on them as the two quintessential characteristics of entrepreneurship. He posited that some archetypal traits- opportunistic, innovative, proactive rather than reactive, high profile image making among others are traits

that propel entrepreneurial orientation capable to increasing productivity This paper accepts the five dimensions of entrepreneurial orientation to consist of innovation, proactiveness, competitive aggressiveness, risk taking and autonomy.

Innovation, according to Covin and Miles (1999) refers to the tendency of the firm to support new ideas, experiment and create processes earlier than competitors. Innovation will enable the firm to improve on current lines of products, bring into the market new products and use better production techniques or equipment that will enhance productivity. Innovativeness, an attribute of the entrepreneur, refers to the willingness to try new methods which differs from the existing, enthusiasm to bring on board new methods in the way the business is being operated and the willingness to implement the innovative strategy. We believe the firm's innovativeness which is akin to its "distinctiveness" enables the firm to build and capitalise on its competences, leverage on the utilisation of its resources and thus lead to improved competitiveness (Kuratko and Audretsch, 2009; Hitt et. al., 2009). In the present day dynamic environment, the strategic management with its full set of commitments, decisions and actions tends to present sustainable competitive advantage capable of yielding above average returns taming the turbulence in the environment and promoting entrepreneurial re-orientation or what Ferreira and Azevedo (2008) described as strategic entrepreneurship. Literature according to Wong, Ho, and Autio (2005), "suggests that entrepreneurship contributes to economic performance by introducing innovations, creating change, creating competition and enhancing rivalry."

Ventakaraman (1989) considers proactiveness to imply seeking new opportunities that may or may not be related to the existing line of operations. In other words, firms are proactive when they shape their environments i.e. through the introduction of new products and services ahead of competitors, eliminating declining brands, entering new emerging markets ahead of competitors and identifying new opportunities. As uncertain and dynamic as the environment is Kuratko, Montagno, and Hornsby (1990) contended that the pursuit of entrepreneurship as a corporate strategy creates a potentially complex set of challenges. This strategic entrepreneurship involves radically changing internal organisational behaviour patterns. And these patterns instead of creating certainty and stability may otherwise result in ambiguity that keeps threatening managers into pursuing disruptive innovations that deviates from the firms current recipes (Ireland, Hitt and Sirmon, 2003; Covin, Green and Slevin, 2006). However, if the patterns are handled holistically and proactively with a clear entrepreneurial mindset, an entrepreneurial culture and entrepreneurial leadership, the sustainable competitive advantage of strategic entrepreneurship will engender organisational effectiveness. Proactiveness is the capacity to take the initiative not only in defence but also in the offence. The proactiveness of the enterprise requires the synergistic management of the firm's resources. A firm's resources are vital at enhancing competitiveness and increased productivity. Further, the authors believe the synergistic management of these resources, their allocation and utilisation in the most effective and efficient manners are highly significant to improved productivity. Efficiency, which Ogunsiji and Anene (1994) consider to be "optimal use of resources" is linked with the synergistic management of resources which include capital, labour and technology. These inputs are at the core of productivity measurements in enterprises. Wiklund and Shepherd (2003) reported that knowledge-based resources are enhanced through entrepreneurial orientation. Such resources include marketing and technology capabilities. The synergistic management of the firm's resources will lead to higher quality of inputs, lower costs and improved efficiency of operation.

Risktaking refers to the capacity of the entrepreneur to perceive risk at its inception and to find avenues to mitigate, transfer or share the risk. These risks involve taking the venture into unfamiliar business terrain as well as that of the commitment of resources. Entrepreneurs generally take more risks than non entrepreneurs.

Competitive aggressive refers to a firm's capacity to outweigh and be ahead of rivals at grasping every opportunity. Lumpkin and Dess (1997) consider this as "a firm's strong offensive posture." The management of success is an important aspect of the competition. Geroski (1994) in an econometric study concluded that "competition plays a significant role in stimulating productivity, with both new firms, and new ideas provoking movements to, and outwards movements of, the production frontier which, the data suggest, would not have occurred in their absence". In the light of the above, we concur that "success management" is a competitive phenomenon that has productivity significance on the enterprises. The entrepreneurial management of success is therefore an imperative for improved productivity.

In Nigeria, there is need for a non stop growth, harmonious and balanced blend of resources with the other engines of growth. Each of these engine of growth like people, market, capital, technology and organisation can only flower and blossom fully where the efficacy of entrepreneurial orientation is appreciated and implemented. The focus in Nigeria presently is on the market subsection of the external environment, people within the internal environment, misapplied chunk of capital and mere desire for technological breakthrough to the utter

neglect of successive and simultaneous delicate blend which is the outright implication of entrepreneurial orientation.

Autonomy which has to do with freedom to articulate and work on one's initiative or convictions as a valid entrepreneurial trait is so much censored in Nigeria to have sustainable comparative advantage on the performance of SMEs. This is in no small measure antithetical to strategic entrepreneurship. Lumpkin and Dess (1996) consider autonomy as the freedom to exercise creativity as individuals or teams at an idea and take it through completion.

4. Conclusion and Recommendations

The benefits of Small and Medium Enterprises to an economy, particularly a developing economy like Nigeria is illusory. For such a developing economy, where the twin issues of poverty and unemployment are paramount, and with the attendant ill-conceived plans of resource allocation, it is imperative that the utilization of resources available to SMEs are optimally leveraged. We furthermore consider entrepreneurial orientation as an innovation that should not only be holistic but proactive to facilitate resource combination capable of producing synergy with a clear entrepreneurial mindset operating in an entrepreneurial culture and affording an entrepreneurial leadership.   Such an innovative entrepreneur must have the capacity to analyse the variables like skills, motives, attributes, competence, socio-political, technological and economic influences in the internal and external environments to discover the distinctive maneuverability in the market, distinctive competences and unique capability that can generate the desired competitive advantage. The entrepreneurial orientation of the SMEs, evidenced in the owner/manager's orientation is therefore a pre-requisite for improved productivity. This will not only accentuate economic growth and development through existing SMEs but also through nascent entrepreneurs. For the government and other stakeholders, the provision of the enabling environment and other facilities is not only necessary but must also be entrepreneurially utilised for increased productivity.

References

Adebusuyi, B. S. (1997). Performance Evaluation of Small-Medium Enterprises (SMEs) in Nigeria. *CBN Bullion*, 21(4): 46 – 52.

Adegbite, O. (2001). Business Incubators and Small Enterprise Development: The Nigerian Experience. *Small Business Economics*, 17: 157-166.

Adegbite, S.E., Ilori, M. O., Irefin, I.A., Abereijo, I. O. &   Aderemi, H. O. S. (2007). Evaluation of the Impact of Entrepreneurial Characteristics on the Performance of Small Scale Manufacturing Industries in Nigeria. *Journal of Asia Entrepreneurship and Sustainability*, 3(1): 1 - 22.

Akande, O.O. & Ojokuku, R. M. (2008). The Impact of Entrepreneurial Skills on Small Business Performance in Lagos-South-Western Nigeria. Paper presented at International Council for Small Business, 53rd World Conference, Halifax, Nova Scotia, Canada.

Aluko, S.A., Oguntoye, A. O. & Afonja, A. A. (1975). *Small Scale Industries in Western Nigeria.* (ed.) Industrial Research Unit, University of Ife, Ile-Ife, 6 – 8.

Baumol, W.J. (1993). *Entrepreneurship, Management and the Structure of Payoffs.* Cambridge, MA: MIT Press.

Beyene, A. (2002). Enhancing the Competitiveness and Productivity of Small and   Medium Scale Enterprises (SMEs) in Africa : An Analysis of Differential Roles of National Governments Through Improved Support Services. *Africa Development*, 27(3) : 130-156.

Covin, J.G., Green, K. M. & Slevin, D. P. (2006). Strategic Process Effects on the Entrepreneurial Orientation-Sales Growth Rate Relationship. *Entrepreneurship Theory and Practice*, 30(1), 57-81.

Covin, J.G. & Miles, M. P.   (1999). Corporate Entrepreneurship and the Pursuit of Competitive Advantage. *Entrepreneurship Theory and Practice,* 23(3): 47- 63.

Covin, J.G. & Slevin, D. P.   (1989). Strategic Management of Small Firms in Hostile and Benign Environments. *Strategic Management Journal*, 10: 75-87.

Ferreira, J. & Azevedo, S. G. (2008). Entrepreneurial Orientation (EO) and Growth of Firms: Key Lessons for Managers and business Professionals. *Problems and Perspectives in management*, 6(1): 81-87.

Geroski, P. (1994). *Market Structure, Corporate Performance and Innovative Activity.* Oxford, UK: Oxford University Press.

Hallberg, K. (2000). *A market Oriented Strategy for Small and Medium-Scale Enterprises.* IFC Discussion Paper 40. http//: www.ifc.org   (June 17, 2009).

Hitt, M. A., Ireland, R.D. & Hoskisson, R.E. (2009). *Strategic Management: Competitiveness and Globalization*, (8th ed.). Mason, OH: Cengage Learning.

Inyang, B. J. & Enuoh, R. O. (2009). Entrepreneurial Competencies: The Missing Links to Successful Entrepreneurship in Nigeria. *International Business Research*, 2(2): 62-71.

Ireland, R. D., Hitt, M. A. & Sirmon, D. G. (2003). A Model of Strategic Entrepreneurship: the Construct and its Dimensions. *Journal of Management*, 29: 1-26.

Kharbanda, V.P. (2001). Facilitating Innovation in Indian Small and Medium Enterprises-the Role of Clusters. *Current Science*, 80(3): 343 - 348.

Kuratko, D.F. and Audretsch, D. B. (2009). Strategic Entrepreneurship: Exploring Different Perspectives of an Emerging Concept. *Entrepreneurship Theory and Practice*, 33(1): 1-17.

Kuratko, D. F., Montagno, R. V. & Hornsby, J. S. (1990). Developing Entrepreneurial Assessment Instrument for Effective Entrepreneurial Environment. *Strategic Management Journal*, (2): 49-58.

Ladanu, W.K. (2009). Sustainable Development and Financing of Small and Medium Enterprises in Nigeria: The Journey So Far. *Journal of Business Administration and Management* . 4(1): 43-49.

Lal, K. (2007). Globalisation and the Adoption of ICTs in Nigerian SMEs. *Science, Technology & Society*. 12(2): 217-244.

Lebell, D., Schultz, K. & Weston, J. F. (1974). Smalll-Scale Industries and Developing Countries. *California Management Review,* 17 (1): 32-39.

Lewis, W.A. (1977). Reflections on the Structure of Nigerian Manufacturing Industry. In O. Teriba, & M.O. Kayode (Eds.), *Industrial Development in Nigeria: Patterns, Problems and Prospect.* Ibadan, Oyo State: Ibadan University Press.

Lumpkin, G. T. & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1): 135-172.

Lumpkin, G. & Dess, G. (1997). Proactiveness Versus Competitive Aggressiveness: Teasing Apart Key Dimensions of an Entrepreneurial Orientation. In P. D. Reynolds, W. D. Bygrave, N. M. Carter, P. Davidsson, W. B. Gartner, C. M. Mason & P. McDougall (Eds.), *Frontiers of Entrepreneurship Research*. Babson Park, MA: Babson College.

McClland, D.C. (1987). Characteristics of Successful Entrepreneurs. *Journal of Creative Behaviour,* 21(3): 219-233.

Miller, D. (1983). The Correlates of Entrepreneurship in Three Types of Firms. *Management Science,* 29(7): 770-791.

Miner, J.B. (1997). A Psychological Typology and its Relationship to Entrepreneurial Success. *Entrepreneurship and Regional Development*. 9(4): 319-334.

Nigerian Investment Promotion Commission (2004), *Overview of Small and Medium Scale Enterprises in Nigeria* . An Information Booklet, Abuja. 1-33.

OECD (1998). *Annual Competitiveness Report SME Performance.* OECD, Paris.

OECD (2004). *Small and Medium-Sized Enterprises in Turkey: Issues and Policies.* OECD, Paris.

Ogun, O., and J. C. Anyanwu (1999). Financing Small and Medium Enterprises in Nigeria : Lessons From International Experience. *The Nigerian Financial Review*, 8(1) : 12-21.

Ogunsiji, A.S. (2002a). Agricultural Credit Strategies and Productivity Performance of Small Scale Agro-based Industries. *Research Communications in Management*, 1(2): 42-50.

——————————— . (2002b). The Practice and Impact of Strategic Management in Small Scale Industry Performance in Oyo State, Nigeria. Ph.D. Dissertation, Departmentnt of Management Science, Ladoke Akintola University of Technology, Ogbomoso Nigeria.

————————— . (2004). Strategic Management in the Hand of an Excellent Manager Will Improve Productivity; But What Won't : A Discourse. *International Journal of Socio-Economic Development and Strategic Studies*, (1): 86-94.

————————— (2005). Managing Strategic Surprises/Failures in Small Scale Transport Enterprises. *Adamawa State University Business Journal*. (1) : 8-13.

Ogunsiji, A.S. & Anene, E. C. (1994). Productivity and Efficiency in the Private Sector: A Managerial Perspective, In O. L. Oludimu, & J. O. Fasanya (Eds.), *Corporate Strategy Policy and Decision Making.* Ogbomoso, Oyo State: Asogun Books.

Oludimu, O.L. & Ogunsiji, A. S. (1994). Productivity and Economic Performance of Rural Industries: A Case Study. In O.   L. Oludimu, & J. O. Fasanya (Eds.), *Corporate Strategy Policy and Decision Making*. Ogbomoso, Oyo State: Asogun Books.

Olutunla, G.T. & Obamuyi, T. M. (2008). An Empirical Analysis of Factors Associated with The Profitability of Small and Medium-enterprises in Nigeria. *African Journal of Business Management*. 2(10): 195-200.

Roberts, M.J. & Tybout, J. R. (1997). Producer Turnover and Productivity Growth in Developing Countries. *The World Bank Research Observer*, 12(1): 1-18.

Swierczek, F.W. & Ha, T. T. (2003). Entrepreneurial Orientation, Uncertainty Avoidance and Firm Performance. *Entrepreneurship and Innovation*, 4(1): 46 - 58.

Teece, D.J., Pisano, G. & Schuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7): 509-533.

Ventakaraman, N. (1989). Strategic Orientation of Business Enterprises: The Construct, Dimensionality and Measurement. *Management Science*, 35: 942-962.

Wiklund, J. & Shepherd, D. (2003). Knowledge-Based Resources, Entrepreneurial Orientation and the Performance of Small and Medium-sized Businesses. *Strategic Management Journal,* 24(13): 1307-1314.

Wong, P.K., Ho, Y. P. & Autio, E. (2005). Entrepreneurship, Innovation and Economic Growth: Evidence from GEM Data. *Small Business Economics*, 24: 335-350.

World Bank, (2002). *An Assessment of the Private Sector in Nigeria,* Regional Program On Enterprise Development, Africa Private Sector Department. Small and Medium Enterprises Department, Washington, D.C., World Bank

Yu, T.F.L. (2001). Towards a Capabilities Perspective of the Small Firm. *International Journal of Management Reviews*, 3(3): 185-197.

Zahra, S. (1993). A Conceptual Model of Entrepreneurship as Firm Behavior: A Critique and Extension. *Entrepreneurship Theory and Practice*, 14(4): 5-22.

Table 1. Micro Small and Medium Enterprises Definitions

	Assets Excluding Real Estate (million Naira)			Annual Turnover (In million Naira)			Number of Employees		
	Med	Small	Micro	Med	Small	Micro	Med	Small	Micro
Central Bank of Nigeria	<150	<1		<150	<1		<100	<50	
NERFUND		<10							
NASSI		<40	<1		<40			3-35	
Min. of Industry*	<200	<50					<300	<100	<10
NASME	<150	<50	<1	<500	<100	<10	<100	<50	<10
Arthur Andersen				<500	<50				

[a]National Council of Industry under the Ministry of Industry revises SME definition once a year.

Source: World Bank 2002.

Table 1 gives some definitions of micro, small and medium enterprises by some Nigerian government and private agencies.

Table 2. Index of Manufacturing Production in Nigeria 1986-2006 (1985=100)

Year	Index	Percentage Change
1986	96.1	----
1987	128.4	33.6
1988	135.2	5.3
1989	154.3	14.1
1990	162.9	5.6
1991	178.1	9.3
1992	169.5	-4.8
1993	145.5	-14.2
1994	144.2	-0.9
1995	136.2	-5.5
1996	138.7	1.8
1997	138.5	-0.1
1998	133.1	-3.9
1999	137.7	3.5
2000	138.2	0.4
2001	142.2	2.9
2002	146.3	2.9
2003	148.0	1.2
2004	145.7	-1.6
2005	145.8	0.1
2006	145.7	-0.1

Source: Central Bank of Nigeria Statistical Bulletin (2007).

Table 2 shows the index of manufacturing in Nigeria between 1986 and 2006, a twenty year period.

The table highlights the dwindling of productivity fortunes for enterprises in the manufacturing sector in the Nigerian economy.

Table 3. Industrial Capacity Utilisation (Percent)

S/N	Sectors	2002	2003	2004	2005	2006	2007
1	Food Beverages & Tobacco	58.85	53.7	41.32	43.73	50.25	48.05
2	Textile Apparel & Footwear	44.9	50.75	36.2	47.5	36.6	51.25
3	wood & wood products	55.75	53.45	45.25	35.5	42.4	65
4	Pulp, Paper & Publishing	65.75	49.65	69	35.37	46.1	52.4
5	Chemical & Pharmaceutical	51.8	56	32.82	41.42	41.1	48.6
6	Non-metallic & Mineral Products	50.05	57.5	60.6	77.35	64.55	66.5
7	Domestic/Industrial Plastic & Rubber	53.6	56.9	43.52	52.22	50.42	48.25
8	Electrical & Electronics	41.1	32.1	41.25	50	38.95	56.05
9	Basic Metal, Iron & Steel	49.65	48.8	46.53	48.28	50.5	41.6
10	Motor Vehicle & Miscelleneous Assembly	41.3	30.15	33.72	25.93	33.8	27.5

Source: Manufacturers' Association of Nigeria, Biannual Report, Various Issues.

Table 3 also adds credence to the fact that low levels of performance exist in the manufacturing sector of the Nigerian economy. The table indicates, on the whole, an average or below average performance in the industrial capacity utilisation in the various sectors.

On Financial Management for SMEs under New Conditions

Li He

School of Accounting, Shandong Economic University

Jinan 250014, China

E-mail: helizh@163.com

Abstract

The financial crisis erupted in 2008 makes the current global economy remain uncertain. SMEs, as an important force in China's national economy, face a crisis of survival due to the more difficult business development. An important reason is that SMEs overlook the central position of financial management, so that the role of financial management has not been fully realized. In order to minimize the loss of SMEs to enhance their ability to withstand the crisis and master a rare strategic opportunity, to strengthen the financial management is very important.

Keywords: Economic crisis, SMEs (Small and medium-sized enterprises), Financial management

Since the reform and opening up, China's SMEs develop with energy, playing an important role in economic growth and social stability. In 2008, the financial crisis triggered by the U.S. subprime mortgage crisis makes global economy enter the cold. Chinese enterprises, especially SMEs, suffer a lot. Only in the first half of 2008, more than 60,000 SMEs were bankrupted, merged, or purchased. Till the first half of 2010, many economic indexes have improved in China. But under the common context of global economic integration, the future is still uncertain. SMEs still face severe challenges. Compared with large enterprises, China's SMEs can not resist crisis risks properly. An important reason is the difference in financial management. Financial management is the core of an enterprise's whole management system. Enterprises with standard financial management and perfect system are more flexible in crisis resistance and fine management. In front of new situation, SMEs should be actively self-adjustment, especially in the financial management, reforming boldly to adapting to environment changes.

1. SMEs' financing issue

Since the reform and opening up, China's SMEs are always at a fast growing stage. However, difficult financing is a bottleneck limiting the fast development of SMEs. Under the overwhelming economic crisis, this problem tends to be more prominent.

1.1 SMEs' financing conditions

Today China sets up many hard regulations on enterprises issuing stocks and securities. Many SMEs can not reach relevant standards. So, for SMEs, the main financing way is the accumulation of their own profits. In external financing, they rely on debt financing heavily, especially on bank loans. However, because of SMEs' small size, loose internal control, and poor transparency, it is hard for them winning the trust of banks. Loans from banks can not satisfy SMEs' needs. After the outbreak of economic crisis, the market downturns and the sales are down. But money are not paid in time and prices of raw materials and labor forces are rising, which makes many SMEs' money flow stop. Meanwhile, due to the rise of uncertainty, banks are more careful in lending money to SMEs and set up stricter evaluation mechanism in order to avoid risks.

1.2 Measures for solving the difficult financing of SMEs

On one hand, SMEs must establish a sound financial system and institutional setting, and compose financial statements by strictly following accounting principles, in order to maintain the accounting materials' authenticity, integrity, and credibility. In business process, adopt the centralized account management mode as far as possible, enhance an unified cash management awareness, establish a good credit image, creating a nice condition for successful financing. On the other hand, SMEs should actively broader the financing channels. For internal financing, SMEs can dig out their own potentials, emphasize on capital accumulation, and gradually increase the proportion of own funds. Listed SMEs can divide the net assets into shares and raise funds by managerial ownership, employee ownership, and certain shareholders rationing, realizing the diversification of shares in order to alleviate the financial pressure in economic crisis. For external financing, firstly SMEs should foster good financial and cooperative relationships with banks, and investors, actively exchanging ideas with them concerning corporate management policy, development plans, and financial conditions. Secondly, if individual loans are difficult, SMEs can combine together to form a mutual aid organization, absorbing social funds, or

organize to form a joint guarantor, member enterprises taking joint liabilities, reducing banks' risks. Finally, under the influences of present economic risks, SMEs can solve the financing issues and step out of the haze of economic crisis by non-traditional financing ways, such as financial leasing, bank discount, and pawn.

2. Problems in SMEs investment

In order to sustain production or win development, SMEs may face many investment opportunities in business management. They must make right decisions.

2.1 Present conditions of SMEs investment

In China, SMEs do not form a perfect management mechanism and the investment decision-making is mostly in the hands of business owners, which makes the investment process lack of internal restrains. The market research is not deep. Then, SMEs can not exactly grasp the market needs. Under the impact of financial crisis, two different investment trends appear in SMEs. For the first trend, affected by the crisis, facing an unoptimistic situation, enterprises are forced to cut or suspend production, reducing investments substantially, or even bankruptcy, to avoid risks. For the second trend, affected by the crisis, under the condition of few competitors and more state policy support, enterprises speed up technological innovation, equipment update, and new production development, increasing more investments. However, some enterprises blindly follow the trend, not make necessary investment feasibility analysis, which causes low rate of investment return. The investment does not achieve the expected result.

2.2 Measures for solving the difficult financing of SMEs

Firstly, SMEs should carefully choose the investment strategy, focusing on inward investment. Facing the economic crisis, Chinese government takes these measures: stabilizing, recovering, and increasing exports, encouraging consumption, and expanding domestic needs. In early 2010, China advances the policy for transforming business mode, and adjusting economic structure. Therefore, SMEs should focus on benefiting production exports and expanding domestic needs. Facing market needs, SEMs must make market analysis. On one hand, strengthen the investment project's feasibility research and demonstration and optimize the investment program. On the other hand, strengthen the investment project's evaluation and review and strive to improve the investment return. Enterprises should adjust product structure and perform integration based on market demand, get rid of business without efficiency and competitiveness, maintain and improve the core business, and highlight the core competitiveness.

Secondly, SMEs should set up rules for the choice of investment, the applied research, the evaluation of products and decision-making, and the execution of investment, and carry them out strictly. Establish a system for investment plans' composition, approval, and financial analysis, standardizing investment process. Summarize successful experiences for project investment. Implement the investment supervision, and enhance the project control and management in practice. Meanwhile, be aware of every stage of the investment project. Pay attention to the progress of each project. Make adjustment in time. Guarantee a precise state of the project from design to implementation.

3. Other financial management issues for SMEs

Considering present critical situation, SMEs have to address several important issues to comprehensively strengthen the financial management level and improve the ability to defuse the crisis.

3.1 The financial management mode

Modern enterprise is based on the separation of ownership. However, most SMEs are private. The typical management mode is still the high unity of ownership and management. This mode is bound to bring more negative business impacts on enterprises' financial management. For example, the phenomena of enterprise owners' centralized and family management are serious. Managers are short of business decision-making right. The recognition and application of modern financial management ideas and methods are insufficient. The management ideas are out of date. All these factors make the financial management lost its rightful place and role in business management.

Under the background of financial crisis, in order to change the unfavorable situation, SMEs need to abandon the family management mode, improve the overall quality of management, fully dig out financial talents, actively absorb and employ excellent talents. Establish a decision-making body composing of experts, technologists, managers, and employee representatives, and make the decision- making objective, scientific, and feasible. Reduce errors as far as possible, and improve the efficiency constantly.

3.2 Cost control

In cost control, SMEs are in the subsequent accounting period. Policies for fixed standards and information

feedback are imperfect. And the advance control and the process control are poor. The spread of economic crisis and the shrink of market demand cause the decline of sales. Enterprise costs tend to be rigid. Meanwhile, enterprises do not pay attention to the accumulation of retained earnings in distributing profits. As a result, enterprises have no sufficient funds for further development.

To control the cost strictly is an important measure for enterprises dealing with the impacts of world financial crisis. SMEs should establish a consciousness of conservation and reduce unnecessary expenditure considering self conditions. By strengthening an overall budget management, enterprises can identify the main contents of cost control, master the controllable costs, analyze the cost factors, make the scientific budget, and develop out a practical cost control index. To ensure the realization of cost control targets, enterprises can target down to every level, implement a clear responsibility for cost management, and carry out the cost control policy properly.

3.3 Cash management

Chinese SMEs pay more attention to profits rather than cash flow in daily evaluation. Most SMEs neglect of cash flow management, lacking of a scientific recognition to cash management. Some enterprises neglect the costs of using cash and agree that the more cash, the better, which leads to unused funds and low rate of using funds. Some enterprises do not make plans for using funds. They purchase too much real estate and inventory. As a result, these enterprises may face financial problems due to the lack of cashes.

In order to deal with economic crisis and ensure enterprises' normal operation and long-term development, sufficient cash flow is essential. SMEs should establish a financial management idea focusing on cash management, strengthen the management of budget's composition, implementation, analysis, and evaluation, specify cash budget project and build budget standards, regulate the process of budget composition, examination, approval, and execution. By this way, enterprises can control the cash flow, guaranteeing the needs for production and the maximum profits. Besides, enterprises should strengthen the daily management of accounts receivable and prepayment, comprehensively understand the customers' abilities to repay debts and credit conditions, make up a scientific and reasonable debt collection policy, accelerate the recovery of investments, and reduce bad debts.

3.4 Defend financial risks

In front of the economic crisis, Chinese SMEs can not resist risks powerfully. The reason is that enterprises can not plan ahead, no perfect risk-control system and financial early warning mechanism. In decision-making, enterprises do not consider financial crisis fully, causing an unbalanced capital structure and high business risks. Enterprises can not make sufficient analysis of financial information, and do not build a financial risk defend system due to a failure of finding main reasons for some errors. Finally, enterprises can not connect certain risk responsibility with specific department or individual.

In the current situation, SMEs should pay more attention than ever to the prediction and analysis of financial risks. On one hand, establish a correct attitude to financial risk management, adhere to the prudent financial risk management concept, evaluate and deal with risks more comprehensively, and get rid of lucky views. On the other hand, strengthen the risk management task. Build a risk early warning system, which can help to detect risks in advance. Improve the emergency response mechanism and ensure the survival of enterprises.

In summary, SMEs should deal with present economic crisis properly, finding potential opportunities from crisis. Make best use of all official support policies and resources. Expand financing channels. Regulate the investment decision-making. Explore the new mode of financial management actively. Establish the modern financial management idea. Meanwhile, strengthen the financial accounting, cost control, and cash flow management. Improve the consciousness of risks. Keep in improving financial management level. Then, enterprises can strengthen their core competence and win its place in market.

References

Gao, Hai. (2009). SMEs financial management strategy in financial crisis. *Money China*. No.10.

Huang, Bin. (2009). On financial management issues in SMEs and countermeasures. *Economic Research Guide*. No.25.

Li, Yining. (2007). *On Private Economy*. Beijing: Beijing University Press.

Xiong, Ya. (2010). Research on SMEs financing issues in financial crisis. *Enterprise Economy*. No.1.

Performance Evaluation of Regional Rural Banks in India

Dr. M.SYED IBRAHIM

Assistant Professor, Sona School of Management

(A Unit of Sona College of Technology)

T.P.T.Road, Salem, Tamil Nadu, South India-636 005

E-mail: syedibrahim_66@yahoo.co.in

Abstract

Regional Rural Banks are established under the provisions of an ordinance promulgated on the 26th September, 1975 and the RRB Act, 1976 with an objective to ensure sufficient institutional credit for agriculture and other rural sectors. Reforms and mergers introduced by the Government of India in consultation with Reserve Bank of India (RBI) and National Bank for Agriculture and Rural Development (NABARD) in the years 1994-95 to 2005-06 have yielded positive results in respect of key performance indicators such as number of banks and branches, capital composition, deposits, loans, loans and the trend of investments. The objective of this paper is to investigate whether the merger/amalgamation of Regional Rural Banks in India, undertaken in 2005-06 has helped improve their performance. Several committees have emphasized the need to improve the performance of these banks which play an important role in the rural credit market in India. The study is diagnostic and exploratory in nature and makes use of secondary data. The study finds and concludes that performance of rural banks in India has significantly improved after amalgamation process which has been initiated by the Government of India.

Keywords: Rural Credit Market, Performance, State Governments, Sponsor, Reserve Bank of India

I. Introduction

Banks play an important role in mobilization and allocation of resources in any country. Rural people in India are facing problems in the inadequate supply of credit. The major source of credit to rural households, particularly-low income working households, has been the informal sector. Informal sector advances loans at very high rates of interest; the terms and conditions attached to such loans have given rise to an elaborate structure of intimidation of both economic and non-economic conditions in rural population in India. RRBs were established in India in 1975 essentially for the purpose of taking banking service to the doorsteps of rural people, particularly in places without banking facilities.

The objectives as given in the preamble of RRBs Act of 1976 were "to develop the rural economy in providing for the purpose of development of agriculture, trade commerce, industry and other productive activities n the rural areas, credit and other facilities particularly to the small and marginal farmers, agricultural labourers, artisans and small entrepreneurs and for matter connected therewith and incidental thereto"

Several changes have taken place in the focus and operation of the Regional Rural Banks in the wake of financial sector reforms in India and various measures have been taken by the Government to improve the commercial viability of RRBs since 1994-95. So it has been considered appropriate to study the performance after amalgamation which took place in the year 2006.A study of the efficiency and its performance of the RRB are particularly important in the Indian context. The objective of this study is to analyze the performance of RRBs during pre and post-merger periods. The indicators selected to study the performance of the RRBs are number of RRBs and branches, geographical coverage, manpower deployment, capital funds, deposits mobilization, loans outstanding and investment made by the RRBs.The paper is organized as follows:

A brief review of the RRBs in India is provided in section-2. In section-3, review of literature is presented. Methodology is discussed in section-4. Section-5 presents the results and analysis and conclusion of this paper is presented in section-6.

II. An Overview of Indian Regional Rural Banks (RRBs)

In India rural people such as small and marginal farmers, landless agricultural laborers, artisans and socially and economically backward castes and classes they have been exploited in the name of credit facility by informal sector. The rural credit market consists of both formal and informal financial institutions and agencies that meet the credit needs of the rural masses in India. The supply of total formal credit is inadequate and rural credit markets are imperfect and fragmented. Moreover, the distribution of formal sector credit has been unequal, particularly with respect to region and class, cast and gender in the country side.

Regional Rural Banks were established under the provisions of an Ordinance promulgated on the 26th September 1975 and the RRB Act, 1975 with an objective to ensure sufficient institutional credit for agriculture and other rural sectors. The RRBs mobilize financial resources from rural/semi-urban areas and grant loans and advances mostly to small and marginal farmers, agricultural laborers and rural artisans. For the purpose of classification of bank branches, the Reserve bank of India defines rural area as a place with a population of less than 10,000.RRBs are jointly owned by Government of India, the concerned State Government and Sponsor Banks; the issued capital of a RRB is shared by the owners in the proportion of 50%, 15% and 35% respectively. The first five RRBs were set up in five States in Haryana, West Bengal, Rajasthan, with one each two in Uttar Pradesh, which were sponsored by different commercial banks. These banks covered 11 districts of these five states. The first five Regional Rural Banks are as follows;

❖   Prathama Bank and Gorakhpur kshetriya Gramin Bank in Uttar Pradesh,

❖   Haryana Krishi Gramin Bank in Haryana,

❖   Gour Gramin Bank in West Bengal,

❖   Jaipur-Nagpur Anchalik Gramin Bank, Rajasthan.

Reform & Merger Process

In the wake of introduction of financial sector reforms in 1991-92, the commercial viability of RRBs emerged as the most crucial factor in deciding about their desired role due to their limited business flexibility with hardly any scope of expansion/diversification, smaller size of loans with higher exposure to risk-prone advances and professional efficiency in financial deployment. To strengthen RRBs and improve their performance many initiatives have been taken by the Government of India and the Reserve Bank of India (RBI). As part of the comprehensive restructuring programme, recapitalization of RRBs was initiated in the year 1994-95. The process continued till 1990-00 and covered 187 RRBs with aggregate financial support of Rs.2188.44 crore from the shareholders, viz., Government of India, State Governments and sponsor Banks in the ratio of 50:15:35. Further, the branch licensing policy for RRBs has been liberalized. Under the new norms, empowered committees at the regional offices of RBI clear RRB application to open new branches. The branches of RRBs may undertake government business including conducting foreign exchange business with the prior approval of the concerned Government authority and RBI. These banks have also been allowed to open extension counters at the premises of the institutions of which they are principal bankers after obtaining license from the concerned regional office of the RBI. The RRBs need not obtain permission of RBI for the installation of ATMs at the branches and extension counters for which they hold licenses issued by RBI. They are also permitted to open off-site ATMs after assessing the cost and benefit. As against the earlier policy of opening a large number of branches in far flung rural areas, RRBs have been permitted to merge/close down their unviable branches and the branch licensing policy for RRBs is almost at par with that for commercial banks. Now RRBs compete with the commercial banks in rural credit market of India. RRBs give loans for agriculture and rural development while commercial banks also serve needs of commerce and industry in rural areas.

In 2005-06, the Government of India initiated the process of structural consolidation of RRBs by amalgamating RRBs sponsored by the same bank within a State as per the recommendations of the Vyas Committee (2004). The amalgamated RRBs were expected to provide better customer service due to better infrastructure, computerization of branches, pooling of experienced work force, common publicity, marketing efforts etc., and also derive the benefits of a large area of operation, enhanced credit exposure limits and more diverse banking activities. As a result of the amalgamation, the number of RRBs was reduced from 196 to 86 as on 31st March, 2009. Thus, under the amalgamation process, 145 RRBs have been amalgamated to form 45 new RRBs.

III. Review of Literature

The literature available in the working and performance of RRBs in India is a little limited. The literature obtained by investigators in the form of reports of various committees, commissions and working groups established by the Union Government, NABARD and Reserve Bank of India, the research studies, articles of researchers, bank officials, economists and the comments of economic analysts and news is briefly reviewed in this part.

Patel and Shete (1980) of the National Institute of Banking Management made a valuable analysis of performance and prospects of RRBs. They also gave a comparative picture of performance in deposits, branch expansion and credit deployment of the co-operative banks, commercial banks and RRBs in a specified area. This was an eye opener for many researchers engaged in this field of rural credit.

NABARD (1986) published "A study on RRBs viability", which was conducted by Agriculture Finance Corporation in 1986 on behalf of NABARD. The study revealed that viability of RRBs was essentially dependent upon the fund management strategy, margin between resources mobility and their deployment and on the control exercised on current and future costs with advances. The proportion of the establishment costs to total cost and expansion of branches were the critical factors, which affected their viability. The study further concluded that RRBs incurred losses due to defects in their systems as such, there was need to rectify these and make them viable. The main suggestions of the study included improvement in the infrastructure facilities and opening of branches by commercial banks in such areas where RRBs were already in function.

Kalkundrickars (1990) in his study on "Performance and Growth of regional Rural Banks in Karnataka" found that these banks had benefited the beneficiaries in raising their income, productivity, employment and use of modern practices and rehabilitate rural artisans.

Kumar Raj (1993) carried out a study on the topic "Growth and Performance of RRBs in Haryana". On the basis of the study of RRBs of Haryana, it is found that there was an enormous increase in deposits and outstanding advances. The researcher felt the need to increase the share capital and to ensure efficient us of distribution channels of finance to beneficiaries.

A. K. Jai Prakash (1996) conducted a study with the objective of analyzing the role of RRBs in Economic Development and revealed that RRBs have been playing a vital role in the field of rural development. Moreover, RRBs were more efficient in disbursal of loans to the rural borrowers as compared to the commercial banks. Support from the state Governments, local participation, and proper supervision of loans and opening urban branches were some steps recommended to make RRBs further efficient.

L.K Naidu (1998) conducted a study on RRBs taking a sample of 48 beneficiaries of rural artisans in Cuddapah district of Andhra Pradesh state under Rayale Seen Gramin Bank. In this study, it was concluded that the beneficiaries were able to find an increase in their income because of the finance provided by the bank.

According to Nathan, Swami (2002), policies of current phase of financial liberalization have had an immediate, direct and dramatic effect on rural credit. There has been a contraction in rural banking in general and in priority sector ending and preferential lending to the poor in particular.

Chavan and Pallavi (2004) have examined the growth and regional distribution of rural banking over the period 1975-2002. Chavan's paper documents the gains made by historical underprivileged region of east, northeast and central part of India during the period of social and development banking. These gains were reversed in the 1990s: cutbacks in rural branches in rural credit deposits ratios were the steepest in the eastern and northeastern states of India. Policies of financial liberalization have unmistakably worsened regional inequalities in rural banking in India.

Professor Dilip Khankhoje and Dr. Milind Sathye (2008) have analysed to measure the variation in the performance in terms of productive efficiency of RRBs in India and to assess if the efficiency of these institutions has increased post-restructuring in 1993-94.

As none of these studies analyze the performance after amalgamation took place in the year 2006, there is a need for carrying out the present study.

IV. Methodology/Research Design

The present study is diagnostic and exploratory in nature and makes use of secondary data. The relevant secondary data have been collected mainly through the data bases of Reserve Bank of India (RBI), National Bank for Agricultural and Rural Development (NABARD). The journals like the Banker and the Journal of Indian Institute of Bankers have also been referred. The study is confined only to the specific areas like number of branches, district coverage, deposits mobilized, credits and investments made by the Indian Regional Rural Banks (RRBs) for the eight years period starting from 2001-02 to the year 2008-09. In order to analyze the data and draw conclusions in this study, various statistical tools like 't' test and ANOVA have been accomplished through EXCEL and SPSS Software.

V. Results and Discussion

Growth of Regional Rural Banks in India

Till the birth of RRBs in India, Commercial Banks and Co-operative Banks were rendered services to the rural public. But despite such large net work of bank branches, the credit needs of the rural population in India were quite inadequate. Regional Rural Banks in India have achieved tremendous growth in terms of number of banks and its wide braches which is shown in the Table-1

It is very clear from the table 1 that the number of RRBs decreased from 196 in the year 2001-02 to 86 in 2008-09. This was due to the amalgamation that took place in the year 2005-2006, covering 525 districts with a net work of 14,494 branches. However, the number of branches has been significantly increased from 14,390 in 2001-02 to 15,181 in 2008-09. The increase over the period was 1.05 times.

A paired t-test was performed to determine whether the pre-merger period performance significantly differs from the post-merger period performance of the Regional Rural Banks in India. The Hypotheses framed are as follows:

HO: There is no difference in performance between the pre-merger period and post- merger period.

H1: There is difference in performance between the pre-merger period and post- merger period. The test results are furnished in Table-2

Tables 2 provides the result that there is strong evidence that (t is < 3.182446), there is difference in the pre-merger and post-merger performance of the RRBs. (i.e., HO is accepted)

Geographical Coverage and Man Power Deployment

Regional Rural Banks (RRBs) were established in India essentially for taking banking to the doorsteps of rural masses, particularly in areas without banking facilities. RRB is a bank for rural poor people; its presence in all the states of country especially in underdeveloped states and union territories is strongly realized. RRBs covered 525 out of 605 districts as on 31st March, 2006. After amalgamation, RRBs have become quite large covering most parts of the states in India. Year-wise coverage of districts and number of branches are given in Table-3

Significant improvement in the performance of RRBs was witnessed over the period of study in terms of number of districts covered. RRBs covered 511 districts as on 31st March, 2002 increased to 616 as on 31st March, 2009. The increase over the period was 1.20 times. However, the human resources employed by RRBs have been considerably decreased year by year owing to the efficiency of the bank.

A paired t-test was performed to determine whether the pre-merger period performance is significantly differs from the post-merger period performance of the Regional Rural Banks in India. The Hypotheses framed are as follows:

HO: There is no difference in performance between the pre-merger period and post- merger period.

H1: There is difference in performance between the pre-merger period and post- merger period. The test results are furnished in Table-4

The result from the table 4 shows that there is strong evidence that (t is < 4.302653), there is difference in the pre-merger and post-merger performance of the RRBs. (i.e., HO is accepted)

Capital Composition

RRBs occupy an important position in the rural credit market of India. The rationale for establishment of the RRB was to mobilize deposits, access to central money market and modernized outlook, which the commercial banks have. Sound financial position is essential for any organization to survive to render the services to the society. RRBs have both types of capital i.e., owned and borrowed. The detailed components of capital funds are furnished in Table-5

Table-5 reveals that the year-wise components of total capital comprises of owned funds and borrowed funds of RRBs in India. Both the owned funds and borrowed funds have constantly been increased over the period of study. It is important to observe from the above table that the borrowed funds constitute more percentage than the owned funds during the post-merger period especially the year 2005-2006 onwards.

A paired t-test was performed to determine whether the pre-merger period performance significantly differs from the post-merger period performance of the total funds of the Regional Rural Banks in India. The Hypotheses framed are as follows:

HO: There is no difference in performance between the pre-merger period and post- merger period.

H1: There is difference in performance between the pre-merger period and post- merger period. The test results are given in Table-6

The result from the table 6 indicates that there is strong evidence that (t is < 4.302653), there is difference in the pre-merger and post-merger performance of the RRBs. (i.e., HO is accepted)

The merger process took place in the year 2005-06. The performance of the owned funds and borrowed funds of the RRBs were compared using ANOVA to test whether the merger process has resulted in improving the

performance in terms of the owned funds and borrowed funds of these banks in India during the study period. The Hypotheses framed are as follows:

HO: There is no difference in performance between these two funds.

H1: There is difference in performance between these two funds.

The test results are given in Table-7.

The mean level of owned funds (6740) is less than that of borrowed funds (7593.875). According to the test result, F=0.363978. With a critical value of. .05, the critical F=4.60011. Therefore, since the F statistic is smaller than the critical value, we fail to reject the null hypothesis that there is no difference in the owned funds and borrowed funds of the RRBs.

Deposits and Loans Outstanding Of RRBs

RRBs are expected to mobilize resources from rural areas and play a significant role in developing agriculture and rural economy by deploying mobilized resources in rural sectors for the needy not conversed by other formal credit institutions. The businesses performance of RRBs in terms of deposit mobilization and credit extension is presented in Table-8.

RRB' is showing considerable improvement in their credit and deposits performance. The deposits mobilized by the bank has been increased from Rs.44, 539 crore in the year 2001-02 to Rs.1, 20,189 crore in 2008-09. The increase over the period was 2.7 times. Loans outstanding of the RRBs also highlighted the significant improvement as it has been increased from Rs.18,629 crore in the year 2001-02 to Rs.67,802 crore is 2008-09. The increase over the period of the study was 3.6 times.

The performance of the pre-merger period and post-merger period of the RRBs were compared using ANOVA to test whether the merger process has resulted in improving the performance of these banks in India during the study period.

The Hypotheses framed are as follows:

HO: There is no difference in performance between loans and investments of the RRBs

H1: There is difference in performance between loans and investments of the RRBs.

The test results are given in Table-9. The mean level of loans (39345.38) is less than that of investments (42226.25). According to the test result, F=0.148846. With a critical value of. .05, the critical F=4.60011. Therefore, since the F statistic is smaller than the critical value, we, fail to reject the null hypothesis that there is no difference in the loans and investments of the RRBs.

Credit Deposit Ratio

The RRBs were conceived to develop rural economy by providing credit and other facilities for the purpose of development of agriculture, trade and other productive activities to the targeted poor people. The credit deposit ratio of the bank indicates the creation of credit out of the deposits mobilized by the banks which has been furnished in Table-10. The table exhibits that CD ratio increased from 41.8 in the year 2001-02 to 56.4 in 2008-09.There has been consistent growth in the sphere of credit deposit ratio. The year 2007-08 registered a higher rate i.e., 59.5%.

Growth of Investments

Investment as a window of deployment of funds was given more emphasis than lending. The year-wise investment made by the banks is presented in Table-11.

There has been consistent growth in the sphere of investment activity. It has been observed from the above table that the amount of investment of the bank has been increased from Rs 30,532 crore in the year 2001-02 to Rs 65,910 crore in 2008-09. The year 2008-09 registered at a highest percentage.

VI. Conclusion

Depending on the context and applications, the term 'performance' may have different connotations. In the present study, the performance of Regional Rural Banks, an attempt has been made to analyze the performance in terms of certain defined parameters like number of branches, district covered, capital funds, and mobilization of deposits, loans and investments made by these banks. The performance of RRBs in India improved in the post-merger period. Even though number of RRBs decreased, the branch net work has been increased. During post-merger period, there has been increased number of districts covered by the RRBs. Total capital funds have been increased tremendously after amalgamation took place in the year 2005-06.Credit-deposit ratio has been

increased over the years showing that a remarkable deployment of credit by these banks in rural areas. However, it is the responsibility of the bank management and the sponsored banks to take the change for corrective steps to raise the credit-deposit ratio of the bank. The gap between CD ratio of commercial banks and the RRBs need to be minimized. With a view to facilitate the seamless integration of RRBs with the main payment system, there is a need to provide computerization support to them. RRBs should extend their services in to un-banked areas and increase their credit-deposit ratio. The process of merger should not proceed beyond the level of sponsor bank in each state. The findings may be of considerable use to rural banking institutions and policy makers in developing countries and to academic researchers in the area of banking performance evaluation.

References

Avkiran, N.K. (1999). The Evidence of Efficiency Gains: The role of mergers and the benefits to the public. Journal of Banking and Finance 23, 991-1013.

Ellinger, P. (1994). Potential Gains from Efficiency Analysis of Agricultural Banks. *American Journal of Agricultural Economics*, 76 (3) pp.652-654.

Government of India Report of the Committee on Rural Banks, (Chairman-M, Narasimhan), New Delhi, 1975.

Gupta, R.V. (1998). Report of the High-Level Committee on Agricultural Credit through Commercial Banks. Reserve Bank of India, Mumbai.

IBA (Indian Banks' Association), (1999). Performance Highlights of Banks, 1997-98, Indian Banks Association, Mumbai.

Karam Pal and Jasvir Singh. (2006). "Efficacy of Regional Rural Banks (RRBs) In India: A Conventional Analysis", JIMS-8M, Indian Journals.com.

Mester, L.J. (1996). "A Study of Bank Efficiency taking into account Risk Preferences", *Journal of Banking and Finance*, Vol.20, No.6, 1025-45.

Misra, B. (2006). The Performance of Regional rural banks (RRBs) in India: Has past Anything to Suggest for future? Reserve Bank of India Occasional Papers, 27 (1), Reserve Bank of India, Mumbai.

Narasimhan Committee. (1991). Report of the Committee on the Financial System, Government of India.

Parliament of India (Loksabha), (2004). Motion for consideration of 'The Regional Rural Banks (Amendment) Bill, 2004.

Professor Dilip Khankhoje and Dr. Milind Sathye, 2008. "Efficiency of Rural Banks: The Case of India", *International Business Research-CCSE*, Vol-1, No.2.

Rangarajan, C. 1995. "Inaugural address at the 18th Bank Economists' Conference', Reserve Bank of India Bulletin, December, XLIX (12), Reserve bank of India, Mumbai.

Report on the Trend and Progress of Banking in India 1995-96, Reserve Bank of India Bulletin, March 1007, 34-35.

Sathye, M. (1997). 'Lending Costs, Margins and Financial Viability of Rural Lending Institutions in South Korea', Spellbound Publications, Rohtak, India.

Sathye, M. (2001). "X-efficiency in Australian Banking: An Empirical Investigation", *Journal of Banking and Finance*, 25,613-630.

Second Narasimhan Committee. (1997). Committee on Banking Sector Reform, Gazette of India-Extraordinary

Notification, Part II, Sec 3 (ii), Ministry of Finance, Government of India.

Subramanyam G. (1993). "Productivity Growth in India's Public Sector Banks: 1979-89", *Journal of Quantitative Economics*, 9, 209-223.

Thakur, S. (1990). Two Decades of Indian Banking: The Service Sector Scenario, Chanakya Publications New Delhi, India.

Tyagarajan, M. (1975). "Expansion of Commercial Banking- An Assessment", Economic and Political Weekly, 10, 1819-1824.

Table-1. Growth of Regional Rural Banks in India

Years	Number of RRBs	Number of Branches
2001-02	196	14,390
2002-03	196	14,433
2003-04	196	14,446
2004-05	133	14,484
2005-06	94	14,494
2006-07	90	14,520
2007-08	90	14,761
2008-09	86	15,181

Source: Central Statistical Information Department, NABARD, June-2009.

Table-2. t-Test results-Number of Branches of RRBs

	Post-Merger	Pre-Merger
Mean	14739	14438.25
Variance	101278	1502.917
Observations	4	4
Pearson Correlation	0.901403	
Hypothesized Mean Difference	0	
df	3	
t Stat	2.119497	
P(T<=t) one-tail	0.062121	
t Critical one-tail	2.353363	
P(T<=t) two-tail	0.124242	
t Critical two-tail	3.182446	

Table-3. Coverage of Districts and Manpower Deployment

Years	Number of Districts Covered	Number of Staff Employed
2001-02	511	69,876
2002-03	516	69,547
2003-04	518	69,249
2004-05	523	68,912
2005-06	525	68,629
2006-07	534	68,289
2007-08	594	68,005
2008-09	616	68,526

Source: Central Statistical Information Department, NABARD, June-2009.

Table-4. t-Test results- Number of Districts Covered by RRBs

	Post-Merger	Pre-Merger
Mean	519	581.3333
Variance	13	1801.333
Observations	3	3
Pearson Correlation	0.875661	
Hypothesized Mean Difference	0	
df	2	
t Stat	-2.74555	
P(T<=t) one-tail	0.055502	
t Critical one-tail	2.919986	
P(T<=t) two-tail	0.111004	
t Critical two-tail	4.302653	

Table-5. Components of Total Capital /Funds (Rs Crore)

Years	Owned Funds	% to Total Funds	Borrowed Funds	% to Total Funds	Total Funds
2001-02	4,059	47.30	4,524	52.70	8,583 (100%)
2002-03	4,666	49.30	4,799	50.70	9,465 (100%)
2003-04	5,438	54.20	4,595	45.80	10,033 (100%)
2004-05	6,181	52.80	5,524	47.20	11,705 (100%)
2005-06	6,647	47.65	7,303	52.35	13,950 (100%)
2006-07	7,286	42.70	9,776	57.30	17,062 (100%)
2007-08	8,733	43.17	11,494	56.83	20,227 (100%)
2008-09	10,910	46.14	12,736	53.86	23,646 (100%)

Source: Central Statistical Information Department, NABARD, June-2009.

Table-6. t-Test results - Total Funds of the RRBs

	Post-Merger	Pre-Merger
Mean	10401	20311.67
Variance	1355968	10842640
Observations	3	3
Pearson Correlation	0.967675	
Hypothesized Mean Difference	0	
df	2	
t Stat	-7.85326	
P(T<=t) one-tail	0.007915	
t Critical one-tail	2.919986	
P(T<=t) two-tail	0.01583	
t Critical two-tail	4.302653	

Table-7. ANOVA (Single Factor) (Owned Funds and Borrowed Funds)

Summary

Groups	Count	Sum	Average	Variance
Owned Funds	8	53920	6740	5023519
Borrowed Funds	8	60751	7593.875	11001685

ANOVA

Source of Variation	SS	df	MS	F	P-Value	F-Crit
Between Groups	2916410	1	2916410	0.363978	0.555954	4.60011
Within Groups	1.12E+08	14	8012602			
Total	1.15E+08	15				

Table-8. Deposits and Loans Outstanding of RRBs in India (Rs.Crore)

Years	Deposits	Loans
2001-02	44,539	18,629
2002-03	50,098	22,158
2003-04	56,350	26,114
2004-05	62,143	32,870
2005-06	71,329	39,713
2006-07	83,144	48,493
2007-08	99,093	58,984
2008-09	1,20,189	67,802

Source: Central Statistical Information Department, NABARD, June-2009.

Table-9. ANOVA (Single Factor)-Loans and Investments of RRBs

Summary

Groups	Count	Sum	Average	Variance
Loans	8	314763	39345.38	3.17E+08
Investments	8	337810	42226.25	1.29E+08

ANOVA

Source of Variation	SS	df	MS	F	P-Value	F-Crit
Between Groups	33197763	1	33197763	0.148846	0.70544	4.60011
Within Groups	3.12E+09	14	2.23E+08			
Total	3.16E+09	15				

Table-10. Credit Deposits Ratio of RRBs in India (%)

Years	CD Ratio
2001-02	41.8
2002-03	44.2
2003-04	46.3
2004-05	52.8
2005-06	55.6
2006-07	58.3
2007-08	59.5
2008-09	56.4

Source: Central Statistical Information Department, NABARD, June-2009.
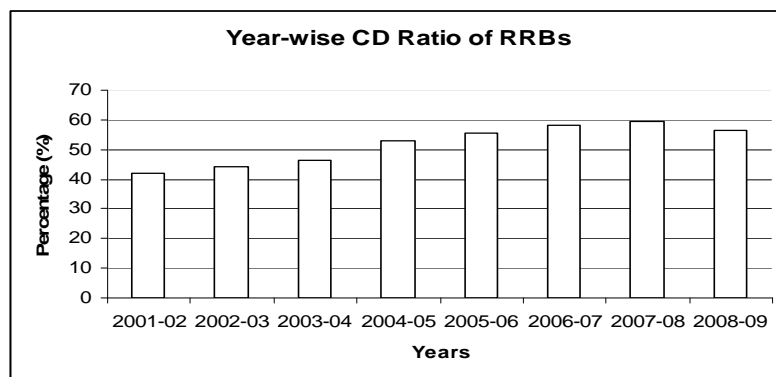
Table-11. Growth of Investments of RRBs in India (Rs.Crore)

Years	Amount of Investment	% of Increase over Previous Year
2001-02	30,532	---
2002-03	33,063	8.28
2003-04	36,135	9.29
2004-05	36,762	1.73
2005-06	41,182	12.02
2006-07	45,666	10.88
2007-08	48,560	6.33
2008-09	65,910	35.72

Source: Central Statistical Information Department, NABARD, June-2009.

The Development of Tourism in the Low Carbon Economy

Wenhong Yang

School of Business, Qingdao Technological University

11Fu Shun Street, Qingdao 266520, China

Tel: 86-532-8687-2256   E-mail: ywhlunwen@sina.com.cn

Abstract

Low-carbon economy has become an inevitable choice for the world's development. How to deal with the advent of low-carbon economy has become the tourism industry's concerns. This article explains the meaning of low-carbon economy, the relationship between the tourism and climate change, the reason that carbon emissions increase in the T&T sector, and tourism development approaches in low-carbon economy.

Keywords: Low-carbon, Economy, Tourism, Climate

1. Building a low carbon economy

A Low-Carbon Economy (LCE) or Low-Fossil-Fuel Economy (LFFE) is a concept that refers to an economy which has a minimal output of greenhouse gas (GHG) emissions into the biosphere, but specifically refers to the greenhouse gas carbon dioxide. Recently, most of scientific and public opinion has come to the conclusion that there is such an accumulation of GHGs (especially CO_2) in the atmosphere due to anthropogenic causes, that the climate is changing. The over-concentrations of these gases is producing global warming that affects long-term climate, with negative impacts on humanity in the foreseeable future. Globally implemented LCE's therefore, are proposed as a means to avoid catastrophic climate change, and as a precursor to the more advanced, zero-carbon society and renewable-energy economy. Some nations are low carbon-societies which are not heavily industrialized or populated. In order to avoid climate change at any point in the future, all nations considered carbon intensive societies and societies which are heavily populated, should become zero-carbon societies and economies.

As a fundamental venue to coordinate social and economic development, guarantee energy security and respond to climate change, development of low carbon economy is gradually gaining the needed consensus from more and more countries. Though without a fixed academic definition, the core of developing low carbon economy is to establish a development pathway that has high energy efficiency, low carbon consumption and low emissions. Under a fair and effective international climate regime, the efficiency of energy exploration, generation, transmission, transformation and use is expected to be increased greatly and energy consumption greatly reduced, so that the carbon intensity in energy supply for economic growth is dramatically reduced, so are the carbon emissions from energy consumption. Through increasing carbon sink and using CCS technology, the GHG emissions from fossil fuels that are hard to reduce can be offset. In the meanwhile, through the establishment of reasonable and fair technology transfer and financial support mechanisms, developing countries can undertake the costs to shift towards low carbon patterns while being at the lowest end of the value chain in the international trade structure. The perspectives of development value need to be changed in order to promote the transition of consumption towards a sustainable and low carbon future.

2. Tourism and climate change

Global warming of the climate system has become an unequivocal fact. According to a large amount of monitoring data, global average land surface temperature has risen 0.74 centigrade over the last century(1996~2005). And the rate of rising has been sped up. In the meantime, global average sea level has been constantly rising too. Our lifestyles, economies, health and social well-being are all affected by climate change, and although the consequences of climate change will vary on a regional basis, all nations and economic sectors will have to contend with the challenges of climate change through adaptation and mitigation. Tourism is no exception and in the decades ahead, climate change will become an increasingly pivotal issue affecting tourism development and management.

With its close connections to the environment and climate itself, tourism is considered to be a highly climate-sensitive economic sector similar to agriculture, insurance, energy, and transportation. The regional manifestations of climate change will be highly relevant for tourism destinations and tourists alike, requiring adaptation by all major tourism stakeholders. Indeed, climate change is not a remote future event for tourism, as the varied impacts of a changing climate are becoming evident at destinations around the world and climate change is already influencing decision-making in the tourism sector.

At the same time, the tourism sector is a non-negligible contributor to climate change through GHG emissions derived especially from the transport and accommodation of tourists. Tourism must seek to significantly reduce its GHG emissions in accordance with the international community, which at the "Vienna Climate Change Talks 2007" recognized that global emissions of GHG need to peak in the next10-15 years and then be reduced to very low levels, well below half of levels in 2000 by mid-century." The tourism sector can not address the challenge of climate change in isolation, but must do so within the context of the broader international sustainable development agenda. The critical challenge before the global tourism sector is to develop a coherent energy use and GHG emissions, so as to allow tourism growth to simultaneously contribute to poverty alleviation and play a major role in achieving the United Nations Millennium Development Goals.

Tourism can play a significant role in addressing climate change if the innovativeness and resources of this vital global economic sector are fully mobilized and oriented towards this goal. The concern of the tourism community regarding the challenge of climate change has visibly increased over the last five years. The World Tourism organization and several partner organizations, including UNEP, convened the First International Conference on Climate Chang and Tourism in Djerba, Tunisia in 2003. This event was a watershed in terms of raising awareness about the implications of climate change within the international tourism community. The Djerba Declaration recognized the complex inter-linkages between the tourism sector and climate change and established a framework for future research and policy making on adaptation and mitigation. A number of individual tourism industry associations and businesses have also shown leadership on climate change, voluntarily adopting GHG emission reduction targets, engaging in public education campaigns on climate change and supporting government climate change legislation.

3. The reason that carbon emissions increase in the T&T sector

3.1 Carbon emissions increase due to the tourism activities

The UNWTO (United Nations World Tourism Organization) defines the Travel and Tourism (T&T) sector as the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited. When we travel, we have to use transportation and check in hotel, so it forms a tourism industry chain for travel services which including transportation, hotels, travel agencies, entertainment and retail etc. In this industry chain, each cluster contributes both direct and indirect carbon emissions. Carbon emissions from sources that are directly engaged in the economic activity of the T&T sector are considered direct emissions. These are, for example, emissions from the usage of electricity by hotels and resorts and emissions from passenger aircrafts and railways. Indirect carbon emissions are produced as a consequence of the activity of the companies in the T&T value chain, but occur from sources not directly engaged in the economic activity within the T&T sector. For example, emissions from electricity usage in airline or travel agent offices, and emissions from transportation of hotel consumables, such as food or toiletries. According to the World Tourism Organization statistics, T&T land transport (car, bus, rail) direct carbon emissions are forecast to grow at an annual rate of 2% per annum through 2035. Air transport direct carbon emissions are estimated to grow at an annual rate of 2.7% per year, direct carbon emissions from ocean-going cruises are estimated to rise by 3.6% per year, Accommodation cluster carbon emissions are forecast to grow at 3.2% per year.

3.2 Carbon emissions increase due to poorly tourism management

Many areas did not conduct further investigation and scientific plans in the tourism development. They over-exploited tourism resources, thus resulting in loss and waste of non-renewable tourism resources. In well known cultural treasures of Dunhuang Mogao Grottoes, because of too many tourists and high level of carbon dioxide in the air, many beautiful color buddhist carvings have changed, the intrinsic physical and chemical structure were also affected. At evergreen Xishuangbanna in Yunnan Province, in recent decades, too many tourist facilities such as hotels and restaurants have been constructed to expand tourism area for economic purposes, which deforested vigorously, thus leading to a sharp decline in forest area, the original sound ecological environment has been seriously damaged. Such examples are happened widespread in many scenic spots. In addition, some contractors use a series of product that waste resources for the sake of maximum profit in their business of restaurants, accommodation, entertainment. For example some hotels and restaurants waste resources by using disposable chopsticks. According to expert estimates, a 20 year old tree can only produce 3000 to 4000 pairs of disposable chopsticks, a 10 years old tree can only produce less than 10 million packs tissue paper, but the average daily absorption of carbon dioxide of a tree is about 5,023 grams, it was calculated that 1 hectare of forest can absorb carbon dioxide released by 200 person per day, and a tree also release a lot of oxygen. The destruction of forest resources may cause more carbon emissions. A medium hotel spending tens of

thousands of small packing liquid shower, shampoo, toothpaste, disposable toothbrush per month, the pollution to the environment in the production of direct and indirect materials is far greater than the pollution induced by using of those disposable products itself.

3.3 Carbon emissions increase due to misconduct of tourism consumption

What influence and even undermine the tourism environment? It is china's large population, fast growing industry that lack of proper planning and management, and also lots of life waste brought by a large number of tourists for their poorly ecological awareness. The increase of emissions aggravated the air pollution, noise pollution and water pollution to the tourist reception. In scenic areas, sewage and garbage can be seen everywhere. Some tourists travel to some places, where can be seen ecological destruction and environmental pollution. They climb and touch historical sites at tourist spots. All of these make serious threat to the original style and lifetime of the monuments, and increase human destruction to the tourist attractions. Even a few tourists do hunting, gathering, camping and picnicking in tourism area, which not only increased the burden on the ecological tourist area, but also can cause species extinction. The balance of tourism area has been severely damaged.

4. Measures of tourism development in low carbon economy

4.1 Scientific management of scenic

In the development of scenic, it is necessary and reasonable to divide the tourist area into core area, buffer and experimental area. In planning of scenic, we need to apply ecological principles and methods to evaluate load capacity of the ecosystems and social systems of the tourist area. The scenic with limited environmental capacity must take measures to control the number of visitors. Specific action plans include: (1) tourism diversification: If possible, re-layout the strong attraction tourism area to distract tourist; Place entertainment at the edge of vacant block to attract tourists and reduce the pressure of the main tourist areas; determine the greatest day point of accommodation of each resource, if possible, limit the number of tourists; Plan the tourism line rational, and avoid the bottleneck effect. (2) queue management: Provide entertainment for tourist to enhance the overall experience when they queuing. (3) provides booking time: Limit visitors access to the major ecological sensitive spots through ticket sales during a specific time, but not other attractions. Eliminate the project that strongly affect the ecological environment, although those can bring profit in the short them.

4.2 Reduce direct carbon emissions caused by the transport

According to the Oslo Climate and Environmental Research Centre of International Studies, over the past 10 years, global carbon dioxide emissions increased by 13 percent, but the growth rate of carbon emissions from transport is 25%. The release of the gas fuel which used by cars, ships, planes and trains and other modes of transport, is one of the factors that contribute to global warming. The tourism industry has very strong correlation with transport industry. According to the World Tourism Organization statistics, the carbon emissions caused by the use of transport for the tourism is 2% of the total global emissions. Therefore, we should reduce the carbon emissions caused by the transport for tourism. Specific practices including promoting public transport and hybrid vehicles, electric vehicles, bicycles and other low carbon or carbon-free ways. To this end, tourism area can also design some bike tours, and add some tourism projects. Meanwhile, tourism area can adopt as far as cable car and other environmental transport models to reduce carbon emissions. For example, the Shanghai World Expo makes use of new environmental friendly vehicles to achieve a zero carbon emissions. We can also learn from the practice of foreign airlines to implement carbon offset program. For example, Continental Airlines cooperation with non-profit organizations on sustainable development of international tourism has launched carbon offset program. The program is voluntary, allowing passengers know of carbon emissions caused by their travel route, and passengers can compensate to the international tourism organization according to their carbon emissions.

4.3 Reduce energy consumption by promoting the green hotel development

The hotel is an important part of the tourism industry. Currently, some hotels have already implemented some measures to reduce carbon emissions. For example, implementation of green hotels, but that is not enough, we need continue to implement and improve such operations. Specific practices include, (1) Enhance the green consumer advocacy. Hotel should treat guests as partners in environmental protection, initiative and promote environmental programs to hotel guests, and improve customer awareness of green consumption. (2) Develop green products, and guide to green consumer. Hotel should develop some green products, such as green rooms, green food, green services, and market them to customers actively, then guide customers to green consumer behavior. (3) Strengthen management to save energy. The hotel should start with the details of the management,

pay attention to equipment maintenance and materials reuse. (4) Try for green certification. Green certification is the eco-label for hotel to implement green management, also is the means to establish green image and attract green guests. Hotels can trying for the certification from ISO14000, implement the "Green Globe 21" standards, thus promoting the hotel's management.

4.4 Improve service quality by innovating tourism products

As a leading tourism enterprise, travel agency should reduce the environmental costs of tourism by innovating tourism products and improving service quality. Specific practices include, (1) trying to avoid the carbon emissions factor in the design of tourist routes. As for some domestic tourist routes, try to choose transports with low carbon emissions. In the short distance air travel, carbon dioxide emissions released by passengers who take aircraft is about 3 times more than that released by passengers who take railways. Try to guide customers to check in green hotels, or carbon neutral hotel. (2) promoting the cultural connotation of tourism products. Promote the integration development of tourism and culture, sports, business and creative industries. (3) enhancing the training of tour guides. Increase their awareness of the important of low carbon travel, and guide the tourists to a low carbon travel. In the tourism process, as far as possible to avoid the fragile environmental areas, and communicate with local guides friendly.

4.5 Change consumer's inappropriate behavior

"Caring for the environment, low carbon travel," is not an empty slogan, but an embodiment of moral cultivation and environmental awareness of civic. Visitors should take practical action to care for nature. Try to take the means of low carbon travel, such as the use of bicycles, electric cars and public transport means in travel. In the tourist attractions, do not litter, and pollute water and soil, to prepare utensils to load garbage when travel to a special area; do not trample cherished plants consciously; Do not collect protected and endangered animal and plant samples; Use green tourism products. Conserve energy, and to be a low carbon tourist.

References

Achim Steiner. (2008). Cimate Change and Tourism. 2008 WTO&UNEP.

Huang J P. (2000).Industrial energy use and structural change.Energy Economy.

Huixin Li.(2004). Eco-tourism carrying capacity and economic development of tourism.Frontier.

Per-Anders Enkvist.(2007).Acost curve for greenhouse gas reduction.The Mickincey Quarterly.

Thea Chiesa.(2009).Towards a low carbon travel & tourism sector.World economic forum.

Zhijun Feng.(2009).Low carbon economy and scientific development.China Soft Science.

Corporate Governance Mechanisms and Extent of Disclosure: Evidence from Listed Companies in Malaysia

Wan Izyani Adilah Wan Mohamad

Faculty of Business Management and Accountancy

Universiti Sultan Zainal Abidin

Gong Badak Campus, Terengganu, Malaysia

Tel: 60-9-665-3767   E-mail: izyaniadilah@udm.edu.my

Zunaidah Sulong (Corresponding author)

Faculty of Business Management and Accountancy

Universiti Sultan Zainal Abidin

Gong Badak Campus, Terengganu, Malaysia

Tel: 60-9-665-3750   E-mail: zunaidah@udm.edu.my

Abstract

The purpose of this study is to examine the relationship between corporate governance mechanisms and extent of disclosure for listed companies in Malaysia. The study attempts to address two research issues: (1) level of corporate governance disclosure by listed companies in Malaysia; and (2) to what extent corporate governance mechanisms affect company disclosure. Regression analysis is conducted to determine the association between corporate governance mechanisms and the extent of disclosure level in Malaysian corporate sector practices. The evidence supports the conjecture that companies with higher percentage of family members sit on the board are significantly have lower level of disclosure in their annual reports.

Keywords: Corporate governance disclosure, Governance mechanisms, Transparency, Financial reporting

1. Introduction

Weakness in corporate governance and lack of transparency are considered causes of the Asian financial crisis, and the subsequent events of corporate collapses and accounting fraud. As a consequence, investors have demanded improvements in governance practices which lead to the implementation of corporate governance codes as the guidelines for companies to improve their governance and disclosure practices. The issue arises as to whether these improvements have been effective in reducing agency costs and therefore enhancing company disclosure. According to Abdul Hadi *et al.* (undated), financial transparency is an important mechanism that provides depositors, creditors and shareholders with the credible assurances that they will not do fraudulent activities. Therefore, the audited financial statements comprise a crucial part of the financial reporting system that is required for effective corporate governance. Further, Beasley *et al.* (2000) have suggested the need for auditors to acknowledge weak governance mechanisms that are related to financial fraud across a number of time periods and industries.

It is generally known that disclosure is one of the fundamental goals of financial reporting system as it becomes a tenet of any corporate governance system. As highlighted by Melis (2004), a *good* system of corporate governance requires a *good* level of disclosure and adequate information to reduce information asymmetries between all parties and making corporate insiders accountable for their action. The financial reporting system represents the main mechanism to provide adequate information to shareholders. As such, financial reporting and disclosure can limit the top management's discretion to pursue their own interest.

Recognising the importance of corporate governance mechanisms and disclosure adequacy, it is significant to have a study focusing on the level of corporate governance disclosure practices among Malaysian companies. Hence, this study attempts to find out whether the established corporate governance mechanisms; namely the proportion of independent non-executive directors, the proportion of independent members of audit committee, the practice of separate CEO and chairman of the board, and the percentage of family members on the board have significant relationships with level of disclosure, particularly in one of emerging market such as Malaysia.

The remainder of this paper is structured as follows. The next section discusses related prior studies and hypotheses development. The following section explains methodology. Data analysis section provides discussion of the findings. Final section concludes the paper.

2. Review of Literature

2.1 Differences on the extent of corporate governance disclosure

Many prior studies have provided evidence that company size is positively associated with disclosure levels (see for instance, Meek *et al*. 1995; Bujaki & McConomy 2002; Ahmed & Courties 1999; Tan *et al.* 1990). According to Bujaki and McConomy (2002), large companies should not generally have difficulty to satisfy the governance requirements compared to smaller companies; even smaller companies may choose to adopt a system of governance which materially departs from the requirements. Therefore, it is expected that the extent of disclosure by large companies will be higher than small companies. The following hypothesis is proposed:

H_1: The extent of corporate governance disclosure in large companies is higher than small companies.

2.2 The proportion of independent non-executive directors on board

Board of directors' key role is to monitor management decisions. There are two types of directors on the board, namely executive and non-executive. Executive directors have direct responsibility in managing the business such as finance and marketing since they are full-time employees of the company (Weir & Laing 2001). Meanwhile, non-executive directors (NEDs) are needed to provide independent judgment such as pay awards, executive director appointments and dismissals when dealing with the executive directors. As such, to have an effective control of management, the board of directors must be independent, in other words, mainly consists of non-executive directors.

Chen and Jaggi (2000) find that a positive association between the ratio of independence NEDs and the comprehensive of financial disclosure support this result. Their result provides evidence suggesting that the proportion of independent NEDs on board is an effective monitor. Besides, the agency theory also suggests a greater proportion of independent NEDs in order to monitor any self-interested actions by executive directors and to minimise the agency cost. Therefore, non-executive directors are seen as a mechanism for monitoring and controlling the actions of the managers and protecting the shareholders interests as well. The larger the proportion of independent non-executive directors on the board, the more effective it will be in monitoring managerial opportunism.

Thus, it is expected that having independent NEDs on the board will also result in higher disclosure (for example, Fama & Jensen 1983; Chen & Jaggi 2000; Bujaki & McConomy 2002; Forker 1992). As such, the following hypothesis is stated as:

H_2: The proportion of independent NEDs has a positive relationship with the level of disclosures.

2.3 The proportion of independent non-executive directors in audit committee

The main duty of audit committee is to meet the external auditors regularly to review financial statements, audit processes and internal accounting system and control. Therefore, the establishment of the audit committee will ensure that there is continuous communication between the board and external auditors (Rashidah &Fairuzana 2006).

In Malaysia, Bursa Malaysia listing requirements mandate every listed company to establish an audit committee consisting of at least three directors of whom a majority is independent (Note 1), while its chairman should be an independent NED (Note 2). In other words, independence of audit committee is based on proportion of independent NEDs in the committee. This independent audit committee will increase the effectiveness and efficiency of the board in monitoring the financial reporting process of a company.

Ho and Wong (2001) provide evidence to support the relationship between the existence of audit committee and the level of disclosure. They find a significant and positive relationship between the existence of audit committee and the extent of voluntary disclosure. Similarly, a study by Barako *et al.* (2006) also provides strong support whereby they find a significantly positive relationship between the presence of audit committee and voluntary disclosure in Kenyan companies.

According to the agency theory, the independent members in audit committee can help the principals to monitor the agents' activities and reduce benefits from withholding information. As a result, the independent NEDs in the audit committee help to increase the level of disclosure by the listed companies. It is therefore hypothesised that:

H_3: The proportion of independent NEDs in the audit committee has a positive relationship with the level of disclosures.

2.4 The practice of separate CEO and chairman of the board

Dominant personality or role duality refers to the CEO who is also the chairman of the board. In other words, a

person has two powerful positions on the board, which would result in probability that person withholds unfavorable information to outsiders. It is because a chairman has a responsibility to monitor the directors on the board as well as the CEO. Besides, it also enables the CEO to engage in opportunistic behavior since he/she has dominance over the board. When CEO duality exists, the CEO needs to monitor both its own decisions and actions, thus actions in the best interest of the shareholders may not be performed.

In the case of disclosure, Ho and Wong (2001) report that there is no significant relationship between dominant personalities and level of disclosure by Hong Kong listed companies. In contrast, Gul and Leung (2004) observe a negative relationship between companies in Hong Kong with CEO duality (defined as CEOs who jointly serve as board chairs) and level of voluntary disclosure.

In Malaysia, there are no mandatory rules for the separation of roles between both chairman and CEO. The adoption is recommended in the Malaysian Code to separate the roles of chairman and CEO. A company which combines the roles of chairman and CEO should have a strong independent element on the board and should be publicly explained (Note 3). In corporate governance system, it might be expected that independent chairman would lead to a more transparent board and hence to greater disclosure. Based on the discussion above, the following hypothesis is developed:

H_4: The practice of separate CEO and chairman has a positive relationship with the level of disclosures.

2.5 The percentage of family members on the board

According to Nicholls and Ahmed (1995), in companies where families have substantial equity holdings, there is generally little physical separation between owners and managers of capital. Thus, the capital owners may not demand highly on disclosure in order to monitor their investments due to better access to internal information. As such, demand for public disclosure will be lower for family controlled companies compared to non-family controlled companies.

A number of empirical evidence supports the relationship between the high percentage of family members on the board and the level of disclosure, for instance, Ho and Wong (2001) find that companies in Hong Kong with a higher proportion of family members on the board are more likely to have lower level of voluntary disclosure. Thus, the result is consistent with prior study by Chen and Jaggi (2000) that the association between independent NEDs and the comprehensive of financial disclosures (i.e. mandatory and voluntary disclosures) is weaker for family controlled firms compared to non-family controlled firms. In the context of Malaysia, many listed companies are family owned or controlled (Rashidah & Fairuzana 2006), most newly public listed companies have evolved from traditional family owned enterprises (Ow-Yong & Guan 2000). Therefore, in family controlled companies, the owner-managers may not be fully aware of the importance of having more disclosure transparency in business practices.

Further, Haniffa and Cooke (2002) provide evidence for the Malaysian companies with the proportion of family members on the board have a negative significant relationship with the extent of disclosure. Similarly, Chau and Gray (2002), also find that the family controlled companies are likely to have lower disclosure. They note that the scenario occurs because of the assumption that "insider" or family controlled companies is less motivated to disclose the information since the demand for the information is quite low as the shareholders might get the information by themselves. Hence, it is suggested that:

H_5: The percentage of family members has a negative relationship with the level of disclosures.

2.6 Differences on the effect of corporate governance mechanisms

As the background and nature of the main board and second board companies are different, the results of examining H_2 - H_5 would also be expected to be different between large and small companies. Therefore, it leads to the following hypothesis:

H_6: The effect of corporate governance mechanisms on corporate governance disclosure is different between large and small companies.

3. Methodology

3.1 Sample selection and data

This study is conducted after the implementation of the Malaysian Code of Corporate Governance (MCCG) through the amendments of *Bursa Malaysia Listing Requirements*, announced in January 2001. Since then, it is documented that with various best practices and recommendations, the listed companies in Malaysia have improved their corporate governance environment (KLSE-PricewaterhouseCoopers 2002; Roszaini & Mohammad 2006; Puan *et al.* 2006). Therefore, the sample years 2002 and 2006 are chosen to represent two

years of the MCCG becoming mandatory through a revamp of Bursa Malaysia listing requirements. It is expected that these companies already aware and improve their corporate governance disclosure in line with the most recent rules and regulations and the best practices of corporate governance.

This study focuses on the four largest industry sectors of listed companies in the Main and Second Board of Bursa Malaysia (Note 4). These four sectors are consumer, industrial, construction, and trading/service sectors. All companies in each sector are ranked in descending order based on the market capitalisation. Then, for each sector, 10 companies will be chosen randomly. Finally, a total of 40 companies out of the total population are selected. A minimum sample size of 30 is appropriate for most research (Sekaran 2003). Table 1 provides details on the selection of companies.   The same procedure is applied for both years 2002 and 2006 with a total of 80 companies out of the total population are chosen.

A final sample selection of 160 companies will be examined in this study. Although the companies selected for this present study only represents 9.3% (2006-Main Board), 16.9% (2006-Second Board), 13.2% (2002-Main Board) and 16.9% (2002-Main Board) of total number of companies, their market capitalisation represents 21%, 25%, 25%, and 24%, respectively. These statistics indicate the importance and significance contribution of these companies in the Malaysian market.

The stratified random sample selection is chosen in order to have general representative sample from a significant proportion of the listed companies, with regard to the extent of corporate governance disclosure. Therefore, the results obtained are able to be generalised to Malaysian listed companies in the respective industrial sectors. Table 2 represents list of companies used in the sample study for the financial year ended 2002 and 2006.

Data are sourced from individual company annual reports. These annual reports are available and downloadable from the website of Bursa Malaysia (*http://announcements.bursamalaysia.com*). However, four annual reports are not available in the website, where each of two annual reports from the second board companies in the year 2002 and 2006. Therefore, those four companies are dropped from the sample companies in this study.

3.2 Description of variables

3.2.1 Dependent variable

The dependent variable used in this study is the disclosure index as a proxy for corporate governance disclosure. This measure has been used extensively by prior studies (see, Ho & Wong 2001; Chau & Gray 2002; Bujaki & McConomy 2002; Chen & Jaggi; 2002; Eng & Mak 2003; Gul & Leung 2004; Haniffa & Cooke 2005; Barako *et al.* 2006). The index is developed with the expectation that compliance to the best practices of corporate governance will provide incentive for companies to disclose information on corporate governance.

Disclosure score is developed based on the best practice of corporate governance in MCCG and Bursa Malaysia Listing Requirements. There are 40 disclosure items where all the items are coded "1" if the companies disclose and coded "0" if not, except for one item which has a maximum score of 2 (refer to Table 3). Finally, all the disclosure scores are added to get a total score for each company whereby the maximum disclosure score is 41.

3.2.2 Independent variables

Four independent variables are examined in this study to represent corporate governance mechanism variables. The four measures are as follows:

(i)   *Independent non-executive directors* (INED):   The proportion of independent non-executive directors to total number of directors is the number of independent non-executive directors divided by the total number of directors on the board.

(ii)   *Audit committee (AUDITCOM):*   The proportion of independent non-executive directors to total number of committees is the number of independent non-executive directors in the audit committee divided by the total number of directors in the audit committee.

(iii)   *Separate CEO and chairman (SEP_CEO):*   The variable is coded '1' if there is separated CEO and chairman of the board of directors, '0' if combined CEO and Chairman.

(iv)   *Family members on the board (FMEMBER):*   The percentage of family members on the board to a total number of directors is the number of family members sit on the board divided by the total number of directors on the board.   Bursa Malaysia Listing Requirements mandate that every listed companies to disclose the relationship or related board members in the annual report.   Based on information available in the annual report, the researcher could easily identify companies with family relationship or related.   Usually, such information can be found in director's profile section.

3.2.3. Control variables

The control variables are measured as follows: (i) firm size (SIZE) is measured by total asset; (ii) leverage (LEV) is measured by total debt over equity value of the firm; (iii) profitability (PROFIT) is measured by the return on sales; and (iv) financial year (YEAR) is awarded 0 for year 2002 and 1 for year 2006.

3.3 The empirical model

The empirical model equation used in this study is depicted as:

$$DSCORE = \beta_1 INED + \beta_2 AUDITCOM + \beta_3 SEP\_CEO + \beta_4 FMEMBER + \beta_5 SIZE + \beta_6 LEV + \beta_7 PROFIT + \beta_8 YEAR + e$$

Where;

DSCORE	=	Disclosure score (in percentage).
INED	=	Proportion of independent non-executive directors on the board.
AUDITCOM	=	Proportion of independent members of audit committee.
SEP_CEO	=	Whether roles of Chairman and CEO are combined or separated. 0 if the CEO is also Chairman of the board of directors, 1 otherwise.
FMEMBER	=	Percentage of family members on the board.
SIZE	=	Total asset.
LEV	=	Total debt over equity value of the firm.
PROFIT	=	Return on sales.
YEAR	=	Financial year where 0 for year 2002 and 1 for year 2006
e	=	Error term

4. Data Analysis

4.1 Descriptive analysis

Table 4 provides the descriptive statistics for all variables utilised in this study. The table reports the mean, maximum, minimum, standard deviation, skewness, and kurtosis. Based on Table 4, results of skewness and kurtosis show that many of the situations are not in the range of -1.0 and +1.0. Skewness and kurtosis are greater than 1.0 or less than -1.0 indicates a non-symmetrical distribution (Vaus 2002). As such, the normality assumption is rejected. Therefore, the researcher decides to transform variables in order to normalize the data by deleting outliers for leverage and profitability variables only. It is because the findings show that only both variables are highly skewed whilst the remaining variables are within or not very much away from the acceptable range.

4.2 Correlation analysis

Table 5 reports Pearson correlation analysis for all companies in the sample. Correlation analysis is used as a preliminary test to measure the relationship between the variables and their strength of the association (Pallant 2001). The low intercorrelation among the explanatory variables used in the regression indicates no reason to suspect serious multicollinearity (Note 5).

4.3 Univariate analysis

As mentioned earlier, the normality assumption is rejected. Therefore, non-parametric statistics that is Mann-Whitney U-test is conducted in the univariate analysis. This non-parametric test for two independent samples is useful to determine whether the value of particular variable differs between two groups, i.e. large and small companies, for years 2002 and 2006. The advantage of Mann-Whitney U-test over the independent-samples t-test is that Mann-Whitney does not assume normality. In this study, Mann-Whitney U-test is conducted to test H_1: *The extent of corporate governance disclosure in large companies is higher than small companies.* Results of the non-parametric Mann-Whitney U-test for all samples, years 2006 and year 2002 are shown in the Table 6.

The result reveals that year 2006 has higher mean rank of disclosure score (DSCORE) compared to year 2002. Mann-Whitney U-test shows that there is statistically significant difference at 0.01 level between the mean for the year 2002 and 2006. The DSCORE gives a Z score of -3.018 (*p < 0.01*). Thus, this result suggests that

companies in the year 2006 disclose more information about corporate governance in their annual reports.

Meanwhile, results from Table 6 also comparing the values of DSCORE among the year 2006 and 2002 for large and small companies. The binary method is used to differentiate between the listed board companies, where large companies are coded as 0 and small companies are coded as 1. The results show that the mean rank of DSCORE for large companies is higher than small companies. The finding is applicable to both sample years; however, sample companies in year 2006 only have significant difference in disclosure score compared to the year 2002. As such, it shows that large companies of year 2006 only have been statistically proven having higher level of disclosure compared to small in year 2006. The Z score is -2.963 (with $p < 0.01$). It implies that large companies disclose more governance information in year 2006 compared to small companies.

Therefore, H_1 is supported in this study for year 2006. At the time of data compilation for this study, main board is used to proxy for large company and second board for small company. The expectation of large companies disclose higher than small companies is consistent with the prior findings of Meek *et al.* (1995), Ahmed and Courties (1999), as well as Eng and Mak (2003). In addition, Bujaki and McConomy (2002) also provide evidence that large companies are more fully implement the corporate governance requirements compared to the smaller companies.

4.4 Multivariate analysis

Table 7 presents the relationships between the extent of disclosure (DSCORE) and corporate governance variables for all samples lies in the years 2006 and 2002. The result shows that only one independent variable is statistically significant, which is FMEMBER ($p<0.01$). The negative relationship between the level of disclosure and percentage of family members sit on the board confirms the H_5, while the other hypotheses are not supported. The finding is consistent with Ho and Wong's (2001) study and other prior studies (for example, Chen & Jaggi 2000; Chau & Gray 2002). The finding suggests that family controlled companies are less motivated to disclose information compared to non-family controlled companies because they can have better access to the internal information. Therefore, the owner-managers might not be fully aware on the importance of having more openness and disclosure in business practice.

The adjusted R-square of 0.211 indicates that the eight variables included in the regression are able to explain 21.10% of the variation in the disclosure score of corporate governance information. Meanwhile, multicollinearity problem between the variables is weak as the tolerance is not 0.2 or less and VIF is not 5 or more (Vaus 2002). Variance inflation factor (VIFs) scores also reveal no problems with multicollinearity if all scores are less than 10 (Chatterjee & Price 1991).

Overall, the findings show that only one corporate governance mechanism has a significant impact on the level of disclosure by companies, which is the percentage of family members sit on the board. Table 8 provides the summary of hypotheses and the findings of the study.

5. Discussion and Conclusion

The present study extends the work of Ho and Wong (2001) where their study is conducted among listed companies in Hong Kong. The present study is conducted to determine whether their results can be generalised in the Malaysian context. The main objective of this study is to investigate whether the existence of corporate governance mechanisms is effective in increasing the extent of disclosure amongst public listed companies in Malaysia. Four established corporate governance mechanisms are examined in this study, that include (i) the proportion of independent non-executive directors (INED), (ii) the proportion of independent members of audit committee (AUDITCOM), (iii) the practice of separate CEO and chairman of the board (SEP_CEO), and (iv) the percentage of family members on the board (FMEMBER). The individual companies' annual reports for the years 2002 and 2006 have been used as disclosure reference to examine the extent of corporate governance disclosure provided by large and small companies. The comparison between Ho and Wong's (2001) study and current study on the relationship between corporate governance mechanisms and the extent of disclosure is presented in the Table 9.

In conclusion, result from this study reveals that companies with a higher percentage of family members sit on the board are significantly have lower level of disclosure in their annual reports. Therefore, it can be suggested to the regulators such as Bursa Malaysia and Securities Commission to review and impose a certain level of family members sit on the board as proposed by Wallace (2004). Malaysian regulators might implement the same guidelines from Hong Kong Society of Accountant (HKSA) to have a limitation of not more than 50 percent of family members sit on the board. In addition, another additional regulation should also be imposed is not allowing any family members to hold the two top positions in the board that are CEO and chairman of the board.

References

Abdul Hadi, Z., M. Fazilah, A.S. & Md. Ishak, I. (undated). Corporate governance in Malaysia. www.micg.net (Date retrieved: 2/7/2007).

Ahmed, K. & Courtis, J.K. (1999). Association between corporate characteristics and disclosure levels in annual reports: A meta-analysis. *British Accounting Review,* 31, 35 – 61.

Barako, D.G., Hancock, P. & Izan, H.Y. (2006). Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance,* 14 (2), 107 – 125.

Beasley, M.S., Carcello, J.V., Hermanson, D.R. & Lapides, P.D. (2000). Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons,* 14 (4), 441 – 454.

Bujaki, M. & McConomy, B.J. (2002). Corporate governance: Factors influencing voluntary disclosure by publicly traded Canadian firms. *Canadian Accounting Perspectives,* 1 (2), 105 – 139.

Chatterjee, S. & Price, B. (1991). *Regression analysis by example*. New York: Wiley.

Chau, G.K. & Gray, S.J. (2002). Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore. *The International Journal of Accounting,* 37, 247 – 265.

Chen, C.J.P. & Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy,* 19, 285 – 310.

Eng, L.L. & Mak, Y.T. (2003). Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy ,* 22, 325 – 345.

Fama, E.F. & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics,* 27, 301 – 325.

Finance Committee on Corporate Governance. (2001). Malaysian Code on Corporate Governance. Kuala Lumpur. *Malayan Law Journal Sdn Bhd*.

Forker, J.J. (1992). Corporate governance and disclosure quality. *Accounting and Business Research,* 22 (86), 111 – 124.

Gul, F.A. & Leung, S. (2004). Board leadership, outside directors' expertise and voluntary corporate disclosures. *Journal of Accounting and Public Policy ,* 23, 351 – 379.

Haniffa, R.M. & Cooke, T.E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus*, 38 (3), 317 – 349.

Haniffa, R.M. & Cooke, T.E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy ,* 24, 391 – 430.

Ho, S.S.M. & Wong, K.S. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing & Taxation*, 10, 139 – 156.

Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics,* 3, 305 – 360.

KLSE-PricewaterhouseCoopers. (2002). Corporate governance: 2002 survey of public listed companies in Malaysia. Kuala Lumpur Stock Exchange (KLSE).

Kuala Lumpur Stock Exchange (KLSE). (2001). *Listing requirements of the Kuala Lumpur stock exchange*. Kuala Lumpur Stock Exchange (KLSE).

Meek, G.K., Robert, C.B. & Gray, S.J. (1995). Factors influencing voluntary annual report disclosures by U.S., U.K. and Continental European multinational corporations. *Journal of International Business Studies*, 26 (3), 555 – 572.

Melis, A. (2004). Financial reporting, corporate communication and governance. *Corporate Ownership & Control ,* 1 (2), 31 – 37.

Nicholls, D. & Ahmed, K. (1995). Disclosure quality in corporate annual reports of non-financial companies in Bangladesh. *Research in Accounting in Emerging Economies,* 3, 149 - 170.

Ow-Yong, K. & Guan, C.K. (2000). Corporate Governance Codes: A comparison between Malaysia and the UK. *Corporate Governance*, 8 (2), 125 – 132.

Pallant, J. (2001). SPSS survival manual: A step by step guide to data using SPSS for Windows (Version 10 and

11). Philadelphia: Open University Press.

Puan, Y., Kent, P. & Clarkson, P. (2006). Governance structures, ethnicity and audit fees of Malaysian listed firms. *Managerial Auditing Journal*, 21 (7), 757-782.

Rashidah, A.R. & Fairuzana Haneem, M.A. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal ,* 21 (7), 783 – 804.

Roszaini, H. & Mohammad, H. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance & Accounting,* 1-29.

Sekaran, U. (2003). Research methods for business: A skill-building approach (4th ed.). Singapore: John Wiley & Sons.

Tan, L.T., Zainal, A.K. & Cheong, P.W. (1990). Information needs of users and voluntary disclosure practices of Malaysian listed corporations. *The Malaysian Accountant ,* 2-7.

Vaus, D. (2002). Analyzing social science data. London: SAGE Publication.

Wallace, D.J. (2004). Sarbanes-Oxley sets standard for small companies. *Rural Telecommunication: Business Matters*, 68 – 73.

Weir, C. & Laing, D. (2001). Governance structures, director independence and corporate performance in the UK. *European Business Review*, 13 (2), 86 – 94.

Notes

Note 1. Rule 15.10, KLSE Listing Requirements (2001).

Note 2. Rule 15.11, KLSE Listing Requirements (2001).

Note 3. Malaysian Code on Corporate Governance, 2001, p.12.

Note 4. The merged Second and Main Board will be known as the Main Market and the Mesdaq Market as the ACE Market, with ACE being an acronym for Access, Certainty, and Efficiency. The changes were implemented on August 3, 2009 (http:www.themalaysianinsider.com, accessed on 11 March 2010).

Note 5. This study considers that multicollinearity problem exists when the correlation exceeded 0.6.

Table 1. Selection of companies

Selection of companies	2006		2002	
	Main Board	Second Board	Main Board	Second Board
Selected sectors:				
• Construction	44	16	35	13
• Consumer products	87	48	58	58
• Industrial products	157	128	105	115
• Trading / Services	142	46	106	51
Final selection	40	40	40	40
Percentage representative	9.3 %	16.9 %	13.2 %	16.9 %
Proportion of market capitalisation	21 %	25 %	25 %	24 %

Table 2. Sample of companies

Sector	2006		2002	
	Main Board	Second Board	Main Board	Second Board
Construction	YTL	LDAUN	YTL	ZECON
	ZELAN	ZECON	RENONG	PLS
	MTD	PLS	WCT	BGYEAR
	SUNWAY	BGYEAR	PJDEV	GADANG
	EKOVEST	MAGNA	GCORP	JETSON
	LOH&LOH	SELOGA	PLB	YCS
	PSIPTEK	JETSON	IREKA	HOOVER
	BPURI	AVGARDE	HOHUP	SETEGAP
	SBCCORP	HOOVER	SUREMAX	FAJAR
	SUREMAX	CYGAL	MERGE	AVGARDE
Consumer products	BAT	DUNBUSH	BAT	DEWINA
	CARLSBG	WANGZNG	ORIENT	POHMAY
	GOLDIS	REX	HLIND	YEOAIK
	MFLOUR	HWATAI	UNZA	PADINI
	GUANCHG	LTKM	DNP	HUATLAI
	IQGROUP	TAFI	KENMARK	EG
	COCOLND	SHH	APOLLO	PINWEE
	YSPSAH	HINGYAP	MAMEE	TECGUAN
	MAXBIZ	BASWELL	HABIB	FORMOST
	LIIHEN	FFHB	NEXNEWS	TOMISHO
Industrial products	PETGAS	ATLAN	ETGAS	INGRESS
	CAMERLN	BSLCORP	APM	MULTICO
	KIANJOO	LIMAHSN	DMIB	WEIDA
	KINSTEL	WATTA	SUBUR	KOMARK
	YILAI	BTM	LEADER	JOTECH
	DKCORP	EG	ALCOM	GPA
	YECHIU	ABRIC	ANCOM	RAPID
	AISB	YOKO	TEKALA	LYSAGHT
	LSTEEL	GUNUNG	GOPENG	RALCO
	OKA	CNASIA	KIALIM	SKW
Trading/ Services	TENAGA	LIONFIB	TENAGA	PHARMA
	TRANMIL	GLOBALC	TANJONG	VADS
	MPHB	SAMUDRA	AMWAY	FSBM
	SAPCRES	JUAN	NALURI	UNIMECH
	MUIIND	AMTEL	MUIIND	CENTURY
	EPIC	SEEHUP	PMIND	RHYTHM
	UTUSAN	KPSCB	WARISAN	CME
	SUIWAH	NEPLINE	KKELLAS	TOCEAN
	SEG	STAMCOL	ANTAH	TENCO
	IPMUDA	KAIPENG	DKMAT	OCEAN
Total	40	40	40	40

Table 3. Disclosure index (developed based on MCCG and Bursa Malaysia LR)

	Disclosure Index Component	Scoring (1 if disclosed and 0 if not)	Item No.
1.	Statement by the BODs on the compliance with the Code.	If the disclosure explicitly states that the board: • Coded 1: To fully comply / committed to comply or has applied / complied with the Code, or • Coded 2: Has substantially or fully complied with the Code.	1
2.	Composition of the BODs.	Coded 1 if the disclosure states at least 2 directors or 1/3rd of the BODs, whichever is the higher, are independent non-executive directors, if not state the reason.	2
3.	Chairman and Chief Executive Officer.	Coded 1 if the disclosure states the roles of Chairman and CEO are separated, if the decision to combine the roles, it should be publicly explained.	3
4.	Statement of directors' responsibility.	Coded 1 if the disclosure states an explanation on the director's responsibility for preparing the annual financial statements, if not state the reason.	4
5.	Directors' assessment.	Coded 1 if the disclosure indicates that there is a process for assessing the effectiveness of the board, its committees and individual directors.	5
6.	Directors' training	Coded 1 if the disclosure state: • In the annual report by BODs whether its directors have attended training programmes prescribed by the Exchange for the financial year, if not state the reason for each director. • Detail of the training programmes. • Providing an orientation and education programme for new directors to the board.	6 7 8
7.	Information to the board: • Supply of information. • Access to information.	Coded 1 if the disclosure indicates that: • The board of directors has been supplied timely basis with the information in a form. • Provide further explanation • All directors (executive and non-executive) have the same right of access to information. • Provide further explanation	9 10 11 12
8.	Internal control statement:	Coded 1 if the disclosure provides a statement about the state of internal control to safeguard shareholder's investment and the company's assets which covering: • Financial control ▪general information, e.g. budgetary ▪provide further explanation • Operational control ▪general information, e.g. organizational structure ▪ provide further explanation • Risk management ▪general information, e.g. risk, management department ▪ provide further explanation	 13 14 15 16 17 18
9.	The existence of an internal audit function.	Coded 1 if the disclosure states the existence of an internal audit function or activity, if not state the reason.	19
10.	Nomination committee: • Existence of the nomination committee for proposing new directors and assessing directors on an on-going basis. • Composition of the nomination committee. • Number of meeting	Coded 1 if the disclosure indicates: • The existence of a nomination committee or other committee that has explicitly responsible for nominating new directors. • A committee of directors composed exclusively of non-executive directors, a majority of whom are independent, if not state the reason. • Number of meeting held.	20 21 22

11.	Remuneration committee:
	 • Composition of the remuneration committee.
	
	 • Remuneration procedure.
	
	 • Remuneration information.
		Coded 1 if the disclosure states that:
		 • The remuneration committee consists of wholly or mainly of non-executive directors, if not state the reason.
		 • The company has formal and transparent procedure for developing policy on directors' remuneration package and provides further explanation.
		 • The remuneration details should be shown in the annual report:
		 ▪ qualitative information
		 ▪ quantitative information
		    - total amount
		    - break down of each total amount
		    - range of remuneration amount
			23
			
			 24
			
			 25
			
			 26
			 27
			 28

12.	Audit committee: • Composition of the audit committee. • Chairman of the audit committee. • Have direct communication channels with internal and external auditors. • Has oversight responsibility for system of internal control.	Coded 1 if the disclosure states that: • Audit committee consists of at least 3 members of whom a majority is independent, if not state the reason. • Chairman of the audit committee shall be an independent director, if not state the reason. • Have direct access to, or communication channels with internal and external directors and provide further explanation. • Has oversight responsibility for the system of internal control and provide further explanation.	29 30 31 32
13.	Audit committee meeting.	Coded 1 if the disclosure states: • The number of audit committee meetings held • Details of attendance of each member, if not state the reason.	33 34
14.	A summary of the activities of audit committee.	Coded 1 if the disclosure states in an informative way the details of the activities of the audit committee.	35
15.	Audit committee's term of reference	Coded 1 if the disclosure has written term of reference which deals with its authority and duties.	36
16.	Relationship with investors and shareholders.	Coded 1 if the disclosure states that: • Company conducts dialogue to communicate with investors or has formal communication like AGM and annual report. • Company has informal communication with investors like participative in regular meeting (other than AGM and annual report). • Company's website address. • Person in charge for any enquiries.	37 38 39 40

Table 4. Descriptive statistics of all variables

Variable	Mean	Maximum	Minimum	SD	Skewness	Kurtosis
DSCORE	65.04	87.80	34.15	10.09	-0.356	0.297
INED	40.70	100	18.18	10.54	1.670	6.053
AUDITCOM	70.48	100	33.33	10.71	0.900	3.890
SEP_CEO	75.00	100	0	43.44	-1.166	-0.649
FMEMBER	23.15	72.73	0	22.85	0.337	-1.284
LOGSIZE	8.43	10.81	7.45	0.66	1.224	1.547
LEV	1.41	29.85	-8.49	2.90	6.387	61.174
PROFIT	0.84	179.79	-29.83	14.68	11.772	145.191

Table 5. Pearson correlation analysis

All sample	Dscore	INED	Audit-com	Dominant	FMember	Logsize	Lev	Profit
Dscore	1	0.113	0.145	0.115	-0.321**	0.239*	0.140	0.166
INED		1	0.384**	-0.126	-0.115	0.173	0.276**	-0.003
Auditcom			1	0.093	0.023	0.331**	0.130	0.110
Sep_CEO				1	-0.040	0.144	0.065	-0.003
FMember					1	-0.139	-0.165	-0.151
Logsize						1	0.404**	0.236*
Lev							1	-0.161
Profit								1

Note: The asterisks ** and * denotes correlation are significant at the 0.01 and 0.05 levels, respectively.

Table 6. Mann-Whitney U-test for all sample companies

	Year/Board	Mean Rank	Z	Sig.
DSCORE				
	2002	41.58		
All Sample	2006	58.95		
	Between group		-3.018	0.003
	Large	30.22		
2006	Small	18.28		
	Between group		-2.963	0.003
	Large	27.42		
2002	Small	24.74		
	Between group		-0.644	0.519

Table 7. Regression analysis for all companies in the sample

Variable	Results		Collinearity Diagnostics	
	Coefficient	p-value	Tolerance	VIF
INED	-0.398	0.691	0.733	1.364
AUDITCOM	0.370	0.713	0.744	1.344
SEP_CEO	0.685	0.495	0.935	1.070
FMEMBER	-3.487***	0.001	0.903	1.107
LOGSIZE	1.627	0.107	0.661	1.513
LEV	0.018	0.986	0.704	1.420
PROFIT	0.380	0.705	0.820	1.220
FINANCIAL YEAR	3.738	0.000	0.896	1.116
R^2	0.275			
Adjusted R^2	0.211			
F-statistic	4.275***			

Note: The asterisk *** represents significant at 1 per cent ($p<0.01$) level.

Table 8. Summary of hypotheses and the findings

HYPOTHESES	RESULTS
H$_1$: *The extent of corporate governance disclosure in large companies is higher than small companies.*	Supported (year 2006 only)
H$_2$: *The proportion of independent NEDs has a positive relationship with the level of disclosures.*	Not supported
H$_3$: *The proportion of independent NEDs in the audit committee has a positive relationship with the level of disclosures.*	Not supported
H$_4$: *The practice of separate CEO and chairman has a positive relationship with the level of disclosures.*	Not supported
H$_5$: *The percentage of family members board has a negative relationship with the level of disclosures.*	Supported
H$_6$: *The effect of corporate governance mechanisms on corporate governance disclosure is different between large and small companies.*	Not supported

Table 9. Comparison of findings between Ho and Wong's (2001) and current study

Corporate governance variable	Hypothesis direction	Ho and Wong (2001)	Present study
H$_2$: Proportion of independent NED on the board	+	+ (Not significant)	− (Not significant)
H$_3$: Proportion of independent NED in the audit committee	+	+ (Significant)	+ (Not significant)
H$_4$: Separation of roles between CEO and chairman of the board	+	+ (Not significant)	+ (Not significant)
H$_5$: Percentage of family members on the board	−	− (Significant)	− (Significant)

Description for the above table.

Evaluation on the Market Strategies of Chinese Medical Service

Hongqiao Yu

SAIC GM Wuling Automobile Co., Ltd

Liuzhou city, Guangxi Province, China

E-mail: Hongqiao.Yu@sgmw.com.cn

Abstract

The purpose of this report is to discuss the medical service of China and improve it through evaluating the marketing strategies and finding resolving methods for the marketing issues and problems which caused by the external and market forces in medical service of China.

In this report, firstly, the introduction of background of Chinese medical service is given. Secondly, some marketing knowledge and theories are reviewed. Thirdly, some problems and issues of Chinese medical service are identified. Then, the external and market forces are assessed based on relative theories. Next, marketing strategy is evaluated to improve the efficiency of Chinese medical service. Finally, conclusion and recommendations are given based on analysis.

Keywords: Medical service of China marketing strategy, SWOT, PEST

1. Introduction

The purpose of this report is to discuss the medical service of China and improve it through evaluating the marketing strategies and finding resolving methods for the marketing issues and problems which caused by the external and market forces in medical service of China. This correlative information was collected through various journals and newspaper I read as well as other media that I observed. This report will give the recommendation to senior officials of the Central Government of the People Republic of China as they reform regulatory policy to improve the efficiency of medical service based on analysis about the marketing strategy and issues.

In this report, firstly, the introduction of background of Chinese medical service is given. Secondly, some marketing knowledge and theories are reviewed. Thirdly, some problems and issues of Chinese medical service are identified. Then, the external and market forces are assessed based on relative theories. Next, marketing strategy is evaluated to improve the efficiency of Chinese medical service. Finally, conclusion and recommendations are given based on analysis.

2. Background of Chinese medical service

Big different condition of medical service exists between cities and countryside in China. Basic medical service can be guaranteed in most Chinese cities, especially those with large cities. However, quality of service may vary between geographic regions. The condition of medical facilities in the countryside is generally worse than in the city, where there are many critical care hospitals, but with the economic development of China, the condition of medical service of countryside is improving rapidly. Although in the same city, there are different level hospitals which have different medical facilities, qualified doctors, services and customers.

However, there are some common features in Chinese medical service. Firstly, medicine shop is set in hospital. Every hospital has owned medicine shop. Health care centre and hospital integrates diagnosis, physical examination, treatment and medicine sales. Secondly, health facilities now rely more on users, fee-for-service payments to raise revenue without the government increasing its direct investment. Next, Prescription drugs and diagnostic/treatment technologies are now regulated by a cost-plus-price mechanism. This mechanism was an incentive to health care centre providers to provide more services and improve their productivity. It also encouraged providers to use more expensive services that generate more revenue. Then, all of patients have to charge for register before every diagnosis, and vary charge depends on different medical health care centre or hospital. Finally, every famous hospital locates the centre of city, such as Beijing Xiehe Hospital, Shanghai Renai Hospital, Xian Xijing Hospital and Shenzhen Fuhua I.T.W.M Hospital.

3. Marketing theories

3.1 Marketing Strategy

"Marketing strategy indicates the specific markets towards which activities are to be targeted and the types of competitive advantage to be exploited." (Fifield, 2007 p.12) In the light of Poter, there are three generic strategic

alternatives open to organisation (see the figure 01). The organisation which decides and then consistently follows one of these three prime strategies successfully will achieve good profits and above-average returns on its investment.

Insert Figure 1 Here

"The organisation that wishes to pursue a strategy of differentiation will be operating throughout the complete market rather than addressing one or two specific segments of the marketplace." (Fifield, 2007 p. 98) "Cost leadership means the organisation can do everything in its power to drive its cost base down to the point at which it is able to produce products or services at a lower cost than any of its competitors." (Fifield, 2007 p. 99) It is significant that lowest cost does not mean lowest price. Focus means that organisation is pursuing a focused strategy makes its effort; it does not pursue the entire market as in the case of the cost leadership and differentiation, but just focuses on one or more specific market segments. 'Stuck in the middle' means that there is no clear differentiation between competitors. Also, there is no price competition following.

3.2 Marketing elements

Market strategy has been integrated into the strategy of organisation in modern enterprises; it is one of the business strategies, and it is the bridge of business strategy and marketing planning, it is the order of marketing planning. It is shown as below figure 2.

Insert Figure 2 Here

"Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others." (Kotler et al. 2003) Marketing's main tasks are focused on identifying and satisfying customers' needs, and making it has more attraction than its competitors. These tasks are reached through the marketing mix's application, an elements' combination that the offering actually is created. Marketing mix includes four elements for most physical goods: product, price, place, and promotion. For services, it can be extended to seven elements plus processes, physical evidence and people.

The Product, it covers everything and it includes tangible products (physics goods), intangible products (service) and ideas (commercial messages, for example). It is at the heart of the marketing exchange. If the products does not deliver the benefits the customers wanted or if it does not meet the expectations of the other marketing mix, which means that this organisation is fail to introduce these products, and the marketing strategy could be not supported by these products. The Price, it is interesting and easy understanding element of the marketing mix. However, it plays a very important role in marketing strategy. Price can reflect the issues of buyer behaviour. Price can be used as a competitive weapon. The customers can use price as a means of comparing products, judging relative value for money or judging product quality. The Place includes company activities that make the product available to target consumers. It concerns the movement of goods through the various channels of distribution to the eventual customer. It is important to access to channel management, target market, channel structure, chosen channels' image and logistics. The Promotion, planning and managing the communication with the marketplace. Considering the available techniques of communication, each objective can be achieved, their relative weaknesses and strengths, and the planning processes and management that have to support them. So it is important to emphasize direct marketing, advertising management, developing Promotional Mixes, public Relations. The People, no people no service, the product customer wanted can be created and delivered by people. So it is significant to stress adding value to the marketing package beyond the basic product offering. The Processes, "Procedure, mechanisms and flow of activities by which services are consumed (consumer management process) are an essential element of the marketing strategy." (Kumar, 2004) The Physical Evidence, "the ability and environment in which the service is delivered." (Aaker, 2007) It refers to environment, medium, image and design of premises can be significant in numerous service marketing.

4. Identify the issues and problems

Insert Figure 3 Here

In this part, the main issues of Chinese medical service will try to be identified and described. Based on the 'SWOT' analysis (see the figure 03) and in the light of marketing elements (see the figure 04), the first issue is the place. There is big different condition of medical service between urban area and countryside. The second issue is the price, and higher price has been a burden of Chinese to a patient. The next issue is the product. The Chinese medical service offers two kinds of products which are dissatisfied by customers. One product is medicine and drugs. Another one is the service which is special product. The final issue is the people. Customers are dissatisfied with medical staff's attitude and service. These issues are identified based on the weight of effects on the patients and Chinese market-orientation medical service. These issues are integrated into

complicated problem for Chinese government, and it is difficult to solve it in short time.

Insert Figure 4 Here

4.1 The place issue

The place of medical service is the biggest problem for Chinese. On the one hand, there is great difference in quality of medical service and medical facilities due to different geographic region of China. China is the biggest country in the world, and people in mountain area and plain area have varied economic level of development. The western and eastern China also has different medical condition, as well as urban people and people live in countryside. Critical medical condition emerges in underdevelopment area, such as lack of medical facilities, medicines and doctors in countryside, mountain area and western of China. For some patients who live in underdevelopment area with serious disease, they have to trudge for long distance for treatment. On the other hand, basic medical service can be guaranteed in most Chinese cities, but most of hospitals or health care centres are locate in the centre of city or commercial area rather than residential area. That is not convenient for patients in transportation and parking, especially for urgent patients, and treatment time equal to their life. Therefore, the voice of 'it difficult to see a doctor' usually could be heard in China.

4.2 The price issue

The price of medical service is another headache issue for Chinese. There are some reasons why the price of medical service so high. Firstly, extra physical examination causes high price of medical service. In China, health care centre and hospital integrates diagnosis, physical examination, treatment and medicine sales. Health facilities now rely more on users, fee-for-service payments. Patients have to receive more extra physical examinations in order to meet health care centres' or hospital's revenue and profits. Because patients have no professional knowledge and do not know weather it is need or not. Next, extra medicine expense is added to the patients. Every hospital or health care centre has owned their medicine shop. Doctors not only are responsible for treatment, but also medicine sales. Medical staff usually sells extra medicine to patients for increasing their profits. They often replace less profitable with more profitable medicine and can prescribe large quantities of medicine for generating a higher profit. Finally, the medicine price of hospital is much higher than markets'. In order to sell their medicine to providers, these manufacturers engage in intensive marketing, which includes kickbacks and bribes. (Wang et al, 2007) As a result, medicine cost has increased greatly, which cause high medicine price. Therefore, also the voice of 'it is expensive to see a doctor' could be heard in China.

4.3 The product issue

"Product means the goods-and-service combination the company offers to the target market." (Kolter and Armstrong, 1999 p.49) "In fact, all physical products contain an element of service, and all services contain an element of physical product." (Blythe, 2006 p.88) Medicine is the product offered of health care centre or hospital besides medical service. Customers are dissatisfied with the quality and safety of medicine. At first, in some devious countryside, some expired medicines are still applied for local patients whose lives are suffering from threats by these expired products. Next, some fake medicines also are used for patients in poor mountain area due to government's inefficient monitoring and some doctors want sudden huge profits with illegal trades. Sometimes bad news about death for fake medicine is come out from devious mountain region of China. As a consequence, Chinese people have much complaint about the quality of medicine, sometimes they refuse to treat in local clinic because of worrying about medicine quality.

4.4 The people issue

People play a crucial role in marketing elements, and its issue is also apparent in Chinese medical service. Firstly, medical staff is short in Chinese medical market especially high technical person with ability in treating and defending cancers. China is the large country with 1.3 billion populations. There is lacking of medical staff with qualification in underdevelopment area of China. Secondly, the attitude of medical service could not be accepted happily in some monopolizing medical area. Some patients have to bribe doctors in charge of a case to get better treatment. Patients and their relations are dissatisfied with medical staff's attitude and service. As time passes, they lose their trust step by step in these hospital and medical service care. "The hospital trusts will earn revenue from the service they provide. They therefore have an incentive to attract patients, so they will make sure that the service they offer is what patients want." (Sheaff, 1995 p.1) Finally, some man-made factors lead to poor persons who cannot receive equalled medical service system. Because of medical service cannot provide services to people who cannot pay for them.

5. Assess the external and market forces

China is in a critical stage of reforming its health care system. It is helpful to solve issues of medical service if it

can rein in market forces of the medical service through regulations made by government. The traditional 'PEST' analysis includes four headings that create the mnemonic Political, Economic, Sociological and Technical issues. In this part, we will analysis these factors that caused these above issues of Chinese medical service (see the figure 05).

Insert Figure 5 Here

5.1 Political factors

In China, political factors have greatly impacted on medical service industry, also caused some issues discussed above, such as price, products and people issues. One is many ministries are involved in managing the health system lead to unclear responsibilities between them. At least eleven ministries are involved in medical service business in China, mainly are the Ministry of Health (MOH), National Development and Reform Commission (NDRC), Ministry of Finance (MOF), Ministry of Labor and Social Security (MOLSS), Ministry of Agriculture (MOA), Ministry of Civil Affairs (MOCA), Administration of Chinese Medicine (ACM), State Food and Drug Administration (SFDA), and the General Administration of Quality Supervision, Inspection, and Quarantine. For example, SFDA and the MOH, both of which are responsible for the safety and quality of medicine. These multiple management within across agencies leads to fake products coming out and high price of medicine. Another is that permitted markets which including the licensing of hospitals, doctors, and pharmaceutical factories. The Chinese government currently supervises in market entry, but the implementation of regulations is n*ot stern.*

5.2 Economic factors

Economic factor also is one of the factors that cause the medical service issues. First of all, it can cause the issue of place in medical service. The GDP of China increases rapidly with over 8% every year, fast development of economy does not match with the construction of medical system. Also the regional economic development is not balanceable, and the medical service difference is great between urban and countryside area. Some people who live in devious underdevelopment region feel that it is difficult to receive medical service. Next, it can cause the issue of product (medicine or drugs). In order to develop local economy, some fake drugs are produced sold by illegal medicine factory with local government protection. Finally, the increasing of economic development can cause the high price issue of medical service. With the development of economy, buying power of people is increasing for their income rising. Part of them can afford more expense of medical service with higher price, another part do not. Therefore, high price become an issue of medical service brought by economic development.

5.3 Technical and sociological factors

Technical and sociological factors can cause medical service issue of price and people. On the one hand, the costs of technical protection eventually will be reflected on the price of medical service. For example, patents and copyrights fares. On the other hand, the great population of China needs more medical staff, especially medical expert with high technical ability. Therefore, the issue of medical service shortage still has been in short time.

6. Evaluate the market strategies

The essence of good market strategy is to anticipate and identify what our customers want and then be in the right place at the right time to be able to offer the right product/service to the right people. (Fifield, 2007) In the light of Poter's generic strategies which introduced in theory induction part, Chinese government not only values cost leadership, but also focus on product's quality and safety of medical service (see the figure 06). "Strategies are built on a solid foundational understanding of the organisation's mission." (Dwyer & Tanner, 2006 p.161) The government of China is trying to provide safe, effective, convenient and low-cost public health and service to both rural and urban citizens. With these instructions of medical strategy, Chinese government adopted a serial of medical policies and reforms in order to realize its strategic objectives. For example, market-orientation reform, market-based incentives, permitted markets, pricing and product policy. These policies are playing certain roles on ensuring the fairness of medical service, correcting the failures of market in the delivery system, and ensuring medical equity in the delivery. However, current medical issues still have impact on reaching its medical strategy. Such as, 'it is difficult and expensive to see a doctor for ordinary citizen'. Therefore, China developed some strategies to attempt to resolve these problems.

Insert Figure 6 Here

Firstly, China has established two sets of strategies to solve the place issue. The purpose of the first set is to ensure a sufficient supply of services in devious regions. For this, large hospitals located in urban areas are required to support hospitals or clinics located in mainly rural areas. The reason for the second set of regulations

is to make sure that patients are not refused emergency services if they are unable to pay for them. But who should cover the costs of services for patients not able to pay for them is still being debated. A systematic assessment of the results of both sets of strategies has not been undertaken. In order to achieve greater equity, the government should establish a safety net of basic health services for the poor. This safety net includes regulation as well as direct government financing and the provision of services.

Secondly, the central government has issued regulation to solve price issue of medical. In China, the governments regulate prices, and then the Bureau of Pricing in each provincial government actually sets the prices of medical services and drugs in that province. In order to reduce patients' burden to pay for medical services, governments at both levels announced, for example, several reductions in drug and medical service prices. Because the providers choose which drugs to prescribe and in what quantities, they also can replace less profitable with more profitable drugs and can prescribe large quantities of drugs in order to generate a higher profit. But without rigorously implementing the regulation and changing the incentives to limit prescriptions and the profits from them, price regulation cannot ensure that patients or third parties money is spent effectively. Therefore, the government should set price monitor system to ensure patients' money is spent effectively.

Thirdly, the government hopes to solve effectively the issue of product quality though permitted license. Drug production is licensed by agencies in the provinces, each of which is equivalent to the U.S. Food and Drug Administration (FDA). These agencies are responsible for controlling drug quality only within the province, even though the market for most drugs covers the entire country. These provincial agencies try to balance the tension between drug quality control and the contribution of pharmaceutical factories to local economic development.

Finally, Chinese government is planning to solve the issue of limited human resources. First of all, the government is organizing volunteers of medical service to support rural medical service from urban health care centre and hospitals. Secondly, government has issued the regulation to manage strictly qualifications of doctors, and will beat sternly illegal doctor all of the country. In addition, government encourages graduates to work in countryside with favourable policy. However, it as if is not effective for improving current status. One reason is that the training and efficiency of regulatory personnel are not as effective as they could be. Another reason is that good regulatory practice also requires that officials have high moral standards, which are difficult to maintain in many environments and regulatory situations. In other word, these strategic measures do not solve completely the shortage of medical staff.

7. Conclusion

The aim of this report is to discuss the medical service of China and improve it through evaluating the marketing strategies and finding resolving methods for the marketing issues and problems which caused by the external and market forces in medical service of China. In this report, firstly, the introduction of background of Chinese medical service is given. It mainly includes the status of Chinese medical service which is described as the different medical condition between urban and rural area. Secondly, some marketing knowledge and theories are reviewed. Such as marketing strategy and marketing elements. Thirdly, some problems and issues of Chinese medical service are identified based on marketing elements and the 'SWOT' analysis. Then, the external and market forces are assessed based on 'PEST' analysis from political, economic, sociological and technical aspects. Next, marketing strategies of Chinese medical service is evaluated in order to improve the efficiency of Chinese medical service, which focus on medical service problems. For example, place issue, price issue, product issue and people issue.

Looking to the future, there will be two main features in Chinese medical service industry in the future. One feature is the gap of medical condition between urban and rural area will be reduced. At first, the government is reforming rural medical system including restructure clinics into the centre of medical service to offer effectively more perfect service to local residents. In addition, with the economic development of countryside, their economic condition will be improved, which will enhance local medical level. Another feature is online service become more and more popular, especially the treatment and consultation in psychological aspect. With the development of internet technology and the popularisation personal computer, increasing patients are getting treatment from internet by medical experts. However, it cannot replace actual health care centre and hospitals.

8. Recommendation

In the light of above description and analysis, some recommendations about Chinese medical service should be given. Firstly, the central government should define clear marketing strategy for the development of medical service. Not only can it provides safe, effective, convenient and low-cost public health and service to both rural and urban citizens, but also need to balance improvement of the population safety, health and protection of

medical services with economic development. As well as using regulation restrict providers' behaviour is driven firstly by consideration of their patients health and safety, then secondly by individual interests. Besides, medical policies should ensure the objective selection of medical service and medicine treatment options independent of financial conflicts. Secondly, regulatory policies should be improved, especially in medicine regulating and managing qualification of doctor. Thirdly, the government should use its power to enhance the implementation of regulatory policies to achieve strategic objectives. Through its direct investment in the delivery of medical services and through the provision of funds for health insurance, the Chinese government has become a major stakeholder in the country health care. Chinese policymakers can learn from other countries experiences about ways to use the government purchasing and investment power to help implement regulatory policy in the public interest. Finally, the government should establish science-based regulatory system that draws on other countries recent experiences to assemble the best available evidence to inform regulatory policy. Effective regulatory system requires an evidence-based policy, a transparent information system, and corrective measures that rely heavily on education to change providers' behaviour. Also, restructuring regulatory policy and its implementation, especially by multiple government agencies scattered throughout the country. This includes separating the government role in regulating medical services from its ownership of facilities that provide services.

References

Aaker, D. A. (2007) Strategic Market Management [online]. Available at: http://www.12manage.com (Accessed: 16 April 2008)

Blythe, J. (2006) *Principles & Practice of Marketing*, London: Thomson Learning.

Brassington, F. & Pettitt, S. (2003) *Principles of Marketing,* 3rd edn. Harlow: Pearson education limited.

Dwyer, F. R. and Tanner, J. F. (2006) *Business Marketing: Connecting Strategy, Relationship, and Learning,* 3rd edn. New York: McGraw-Hill/Irwin.

Fifield, P. (2007) *Marketing strategy: the difference between marketing and markets,* 3rd edn. Oxford: Elsevier Ltd.

Kotler, P., Armstrong, G. (1999) *Principles of Marketing,* 8th edn. New Jersey: A Simon & Schuster Company.

Kumar, N. (2004) Marketing as Strategy [online]. Available at: http://www.12manage.com (Accessed: 16 April 2008)

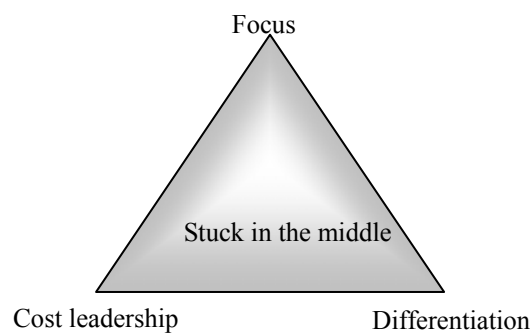Sheaff, R. (1995) *Marketing for health service,* Celtic Court: Open University Press.

Figure 1. Poter's Generic Strategies

Source: Poter (1983)
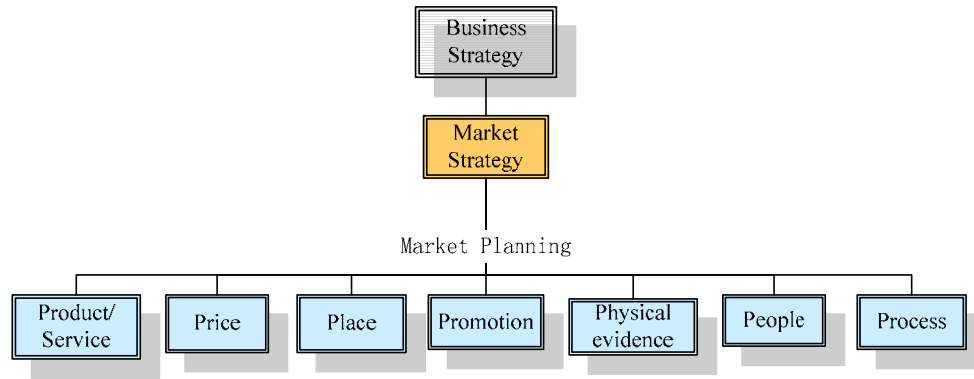
Figure 2. Strategy and Marketing (Fifield, 2007)

Strength	Opportunities
• Great economic increasing	• Great economic increasing
• The great population	• Stable political environment
• Market-orientation medical service	• IT technical application
	• Organization restructuring
Weakness	**Threats**
• **Not balanceable region development**	• **High price**
• Multiple managing sectors	• **Product quality and safety**
• **Short of medical staffs**	• Implementation of regulation is not rigorous
• Inefficient supervise for implementation of regulation	

Figure 3.The SWOT Analysis of Chinese Medical Service

Figure 4. Identifying Issues of Medical Service

Figure 5. The PEST Analysis

Figure 6. Chinese Medical Service Strategies

Information Technology and SMEs in Pakistan
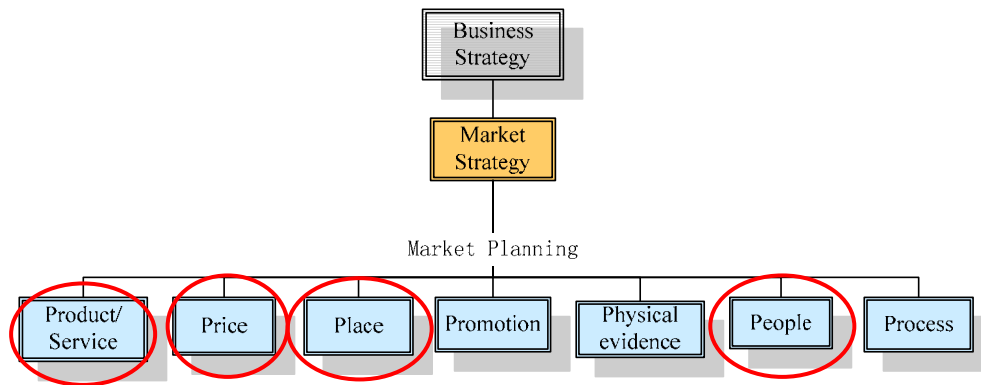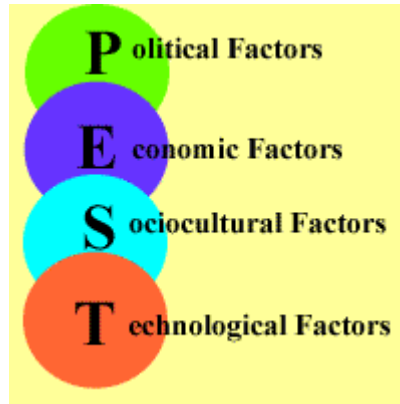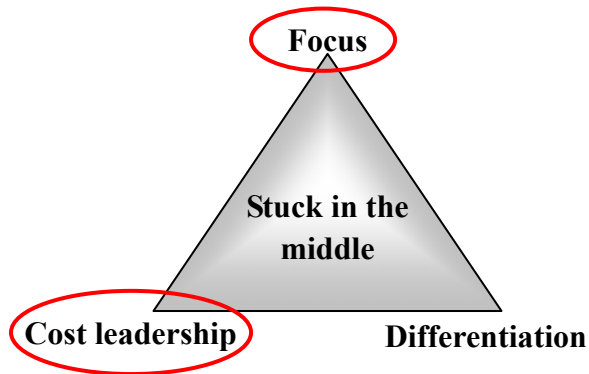
Irfan Ahmed

School of Management, Iqra University Islamabad

5, Khayaban-e-Johar, H-9, Islamabad-44000, Pakistan

E-mail: irfisam@yahoo.com

Akmal Shahzad

School of Management, Iqra University Islamabad

5, Khayaban-e-Johar, H-9, Islamabad-44000, Pakistan

E-mail: everbrighter2011@gmail.com

Muhammad Umar

School of Management, Iqra University Islamabad

5, Khayaban-e-Johar, H-9, Islamabad-44000, Pakistan

E-mail: g_hafizumar_@yahoo.co.in

Dr Bashir Ahmed Khilji

National University of Modern Languages Islamabad, Pakistan

E-mail: kdrbashir@yahoo.co.in

Abstract

Recent, spectacular technological advances and break throughs have made the use of modern information technology a best competitive business tool. This study explores the use of IT by SMEs and their degree of satisfaction in using software and hardware. Results show that use of Word processing and spreadsheet is comparatively high. Use of communication software is very low. There is a dissatisfaction of respondents with software, more than hardware. One main reason is a lack of proper training as employees don't know how to use the software. Informal training methods like on-the-job training and open learning and training programmes etc. are very effective to train employees.

Keywords: Information technology (IT), Small to medium-sized enterprises, Hardware, Software, Training

1. Introduction

The rapid growth of technological innovations and the fusion of information technology has drastically changed the way companies compete. Many business enterprises are implementing the information technology for the purpose of gaining competitive advantage in their industry. In its various manifestations, IT processes data, gathers information, stores collected materials, accumulates knowledge and expedites communication (Chan, 2000). Gaining competitive advantage through the use of information technology requires business owners to have a firm grip over this vital corporate resource and manage its use (Beheshti, 2004).

Many factors influence the firm's competitiveness. However, most of the researchers since 1980 have examined the concept of IT as a powerful competitive factor for organization (Porter and Miller, 1985; Clemons and Row, 1991; Barney, 1999). IT, in its nascent business world form, was generally considered a support tool. However, as time passed and technological sophistication grew, IT's usage and impact increased dramatically (Chan, 2000). This pattern of progress may be due to the advancement of technology. A technological diffusion or infusion may be attributable to the fact that IT's introduction into an organization creates a further technological needs and encourages product and policy innovation to meet such needs.

It is very difficult to clearly distinguish between small, medium, and large firms. Researchers distinguish between SMEs and large corporations on the basis of employees, sales volume, and value of assets. Although the most common way to determine whether a business is small medium, or large, is by number of employees, there

is not an exact threshold that make a distinction between SMEs and large businesses based on the number of employees. However, small and medium sized companies are often considered having less than 500 employees (Hakserver, 1996; van der Wiele and Brown, 1998). In addition, some of the characteristics that separate small and medium sized businesses from large organizations are (Hakserver, 1996): ownership, management and organizational structure; capital resources; objectives; markets; and customers.

IT is recognized as a viable, competitive actor via increased productivity, better profitability, and value for customers (Hitt and Brynjolfsson, 1996). Role of IT in competitiveness has been primarily focused on large organizations. However, in today's global market, and in the era of e-commerce, small and medium size enterprises (SMEs) can employ IT to increase their competitive position along with their large counterparts (Beheshti, 2004). Barau et al. (2001) showed that small businesses were utilising the Internet more than their counterparts. In order to take full advantage of IT and to compete in the global business environment, top executives must recognize the strategic value of IT and exploit it.

Despite the significant contribution that IT has made to business, many studies indicate that there are a large number of unsuccessful IT implementations in SMEs and that the adoption rate is very slow (Acar et al., 2005; Shin, 2006). Researches give three main reasons for this. First, management doesn't know or is unclear on how and why their firms adopt IT in the first place (Levy et al., 2001). Second, there is a misconception toward the IT adoption process mainly because managers do not understand the relationship between IT and the firms themselves (Bull, 2003) or are uncertain about the opportunities that IT can offer (Southern and Tilley, 2000). Finally, firms do not have the capabilities to expand their IT resource (Acar et al., 2005; Claessen, 2005) because of lack of business and IT strategy, limited access to capital resources, emphasis on automating, influence of major customers and limited IS skills (Ballantine et al., 1998; Bhagwat and Sharma, 2007; Bruque and Moyano, 2007).

The state of SMEs in Pakistan is very interesting. SMEs play a very significant role in the economy of Pakistan. These constitute nearly 90% of all the enterprises in Pakistan; employ 80% of the non-agricultural labor force; and their share in the annual GDP is 40%, approximately (SMEDA, 2010). Infat, the rate of adoption and utilization of IT by SMEs is slow but it is increasing with the passage of time as more and more SMEs are realizing the importance of IT.

Purpose of this paper is to investigate the degree of satisfaction of SMEs with the use of IT i.e. software and hardware. Rest of the paper is set as follows: section 2 describes the research methodology; section 3 shows the findings; section 4 and 5 depict the conclusion and limitation respectively.

2. Research Methodology and Sample Size

A questionnaire based survey was conducted into the use of computers in small businesses. A related research has been done by SBRT (Small Business Research Trust) in 1991 and by Mitev and Marah in 1998. Questionnaire of the research was developed by considering study of Mitev and Marah. The instrument consisted of 13 questions. This instrument was presented to 3 scholars for the review. After few suggestions given by them, amendments were made and then it was finalized. Due to time constraint, face-to-face interviews were carried out with owner-managers. The same questions were used as a basis for the semi-structured interviews and the material gathered enriched the questionnaire results qualitatively.

Responses were from companies employing less than 100 people. This study included 90 SMEs from Rawalpindi, Islamabad and Wah Cantt. It was envisaged that there might have been differences in responses between the very small companies (one or two staff) and slightly larger ones. On analysis, the differences proved insignificant and no apparent trends were found. The questionnaire inquired about IT usage and degree of satisfaction or dissatisfaction on the software and hardware.

3. Findings

In the survey, only 15 respondents out of 90 did not currently have computers installed. Computer hardware had been used for an average of 5 years with a range of 1 to 10 years. When asked to rank their degree of satisfaction with computer hardware and software the results in Table 1 are obtained. It is interesting to note that there is some degree of dissatisfaction in the use of both computer software and hardware, this dissatisfaction is more marked in the area of computer software. This is perhaps not surprising given the range of products, which may also give rise to expectations. Making decisions about software may be becoming more complex and risky. Most respondents said that employees could not use the software packages properly. Moreover, there was not a proper training facility available to them. All these trends may explain why there is no 'very satisfied' respondent.

Respondents were asked about their software usage and the results are illustrated in Figure 1. The graph illustrates that the new trends are emerging such as the use of integrated and presentation packages. It also shows that there is comparatively small growth in communication technology. The adoption of word processing software and spreadsheet is particularly high.

4. Conclusion

This study finds out that operational applications such as word processing, databases and spread sheets are used more widely by the SMEs. However, there is still dissatisfaction with purchasing software, and there is a strong need for advice with purchasing software, and there is a strong need for the advice provided by concerned parties other than vendors. Requirements analysis should be supported by a feasibility study, which is still a poorly understood the concept by many owner-managers. Suggestions by Levy et al (1997) include a more proactive approach from the software provider who would review strategy with the company and advise on future IT requirements; bring in a consultant to act as an intermediary; ensure that one person has responsibility for reviewing IT needs and liaising with the software provider.

The majority of SMEs has not advanced to a stage where telecommunications and interconnectivity are seen as important, although there has been growth in this area. Only 40 percent has communication softwares. Some respondents said that employees could not use the software properly. Although most small businesses surveyed acknowledged that work practices must change if IT is to be used effectively, few considered the effects on jobs, skills and training before implementing IT. Those small firms who knew where to get training advice were not satisfied with the training provided. Employees need and informal training methods such as on-the-job training, open learning and training programmes which integrate both technical and managerial aspects. Moreover, successful management training also requires an environment of business growth (Marshall et al, 1995).

5. Limitations

Time constraint was a major limitation as the whole project had to be completed within a term. Sample size was limited. Had the survey been conducted on many other SMEs, results could have been more conclusive. The research was conducted in Islamabad, Rawalpindi and Wah Cantt. For a more generalized perception, this research should be conducted in other cities as well.

References

Acar, E., Koc¸ak, I., Sey, Y. and Arditi, D. (2005). Use of information and communication technologies by small and medium-sized enterprises (SMEs) in building construction, *Construction Management and Economics,* Vol. 23 No. 7, pp. 713-22

Ballantine, J., Levy, M. and Powell, P. (1998). Evaluating information systems in small and medium-sized enterprises: issues and evidence, *European Journal of Information Systems,* Vol.7 No.4, pp.41-51

Barney, J. (1999). Firm resources and sustained competitive advantage, *Journal of Management*, Vol. 17 No. 1, pp. 99-120

Beheshti, H.M.(2004). The Impact of IT on SMEs in the United States, *Information Management and Computer Security*, Vol.12 No.4, pp. 318-327

Bhagwat, R. and Sharma, M.K. (2007). Information system architecture: a framework for a cluster of small and medium-sized enterprises (SMEs). *Production Planning and Control,* Vol. 18 No. 4, pp. 283- 96

Bruque, S. and Moyano, J. (2007). Organisational determinants of information technology adoption and implementation in SMEs: the case of family and cooperative firms, *Technovation*, Vol. 27 No. 5, pp. 241-53

Bull, C. (2003). Strategic issues in customer relationship management (CRM) implementation, *Business Process Management Journal,* Vol. 9 No. 5, pp. 592-602

Chan, S.L., 2000, Information Technology in Business Processes, *Business Management Journal*, Vol 6 No. 3, pp.224-237

Claessen, E. (2005). Strategic use of IC reporting in small and medium-sized IT companies: a progress report from a Nordic project, *Journal of Intellectual Capital,* Vol. 6 No. 4, pp. 558-69

Clemons, E. and Row, M. (1991). Sustaining IT advantage: the role of structural differences, *MIS Quarterly*, Vol. 15 No. 3, pp. 257-92

Hakserver, C. (1996). Total quality management in the small business environment, *Business Horizons*, Vol. 39 No. 2, pp. 33-41

Hitt, L. and Brynjolfsson, E. (1996). Productivity business profitability, and consumer surplus: three different measures of information technology value, *MIS Quarterly*, Vol. 20 No. 2, pp. 121-43.

Levy, M., Powell, P., Merali, Y. and Galliers, R. (1997). Assessing information systems strategy development frameworks in SMEs, in R. Galliers, S. Carlsson, C. Loebekke, C. Murphy, H. R. Hansen and R. O'Callaghan (eds) Proceedings 5th European Conference on Information Systems, University College Cork, Cork, Ireland, 553-569

Levy, M., Powell, P. and Yetton, P. (2001). SMEs: aligning IS and the strategic context, *Journal of Information Technology,* Vol. 16 No. 3, pp. 133-44

Marshall, J. N., Alderman, N., Wong, C. and Thwaites, A. (1995). The impact of management training and development on small and medium enterprises, *International Small Business Journal,* 13(4). 73-91

Mitev, N.N. and Marah, A.E. (1998). *Small Businesses and Information Technology: Risk, Planning and Change*, Henry Stewart Publications, ISSN 1462-6004, 228-245

Porter, M. and Miller, V. (1985). How information gives you competitive advantage, *Harvard Business Review,* Vol. 63 No. 4, pp. 149-60

Small Business Research Trust (SBRT) (1991). *Quarterly survey of small businesses in Britain, No 2, National Westminster and Small Business Research Trust*, Open University School of Management, Milton Keynes

SMEDA Pakistan (2010). Retrieved from *http://www.smeda.org.pk/main* (Aug 20, 2010)

Shin, I. (2006). Adoption of enterprise application software and firm performance, *Small Business Economics,* Vol. 26 No. 3, pp. 241-56

Southern, A. and Tilley, F. (2000). Small firms and information and communication technologies (ICTs): toward a typology of ICTs usage, *New Technology, Work and Employment,* Vol. 15 No. 2, pp. 138-54

Van der Brown, A. and Wiele, T. (1998). Venturing down the TQM path for SMEs, *Total Quality Management,* Vol. 16 No. 2, pp. 50-69

Table 1. Degree of satisfaction of computer hardware/software:

	Percent of firms	
Satisfaction	*Hardware*	*Software*
Not satisfied	0	0
Not entirely satisfied	15	35
Satisfied	75	45
More than satisfied	10	20
Very satisfied	0	0
Note*: There were 75 respondents in each category*		
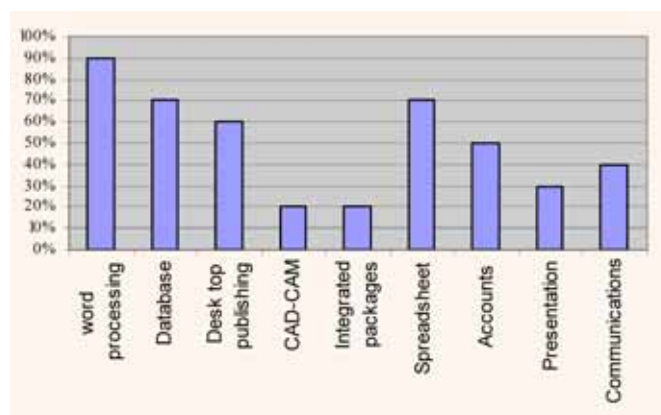
Figure 1. Percentage of Software Used

add the investment return. The listed companies exaggerate the profits by controlling the time and pricing of assets reorganization with related parties, realizing the goal of gaining configured funds.

The specific approaches are: (1) The parent company sells the high-quality assets to listed company at a low price and confirms a small amount of investment return. But the listed company gains profits. (2) It changes the bad assets or equity with poor liquidity of listed company at a high price. Then, the listed company can increase a great amount of profits. (3) It gains interests by assignment of equity. (4) The non-profitable assets are not measured in the consolidated statements in the name of reorganization.

2.3 Cheating by virtual economic matters

The listed companies confirm the income and profits that don't exist at all by signing false contracts or agreements with related parties or non-related parties. The common approaches include: (1) Confirm the income that doesn't meet with the income confirmation conditions as the operation income. (2) Take the subsidiaries that should not be measured in the consolidation scope into the consolidation range, in order to exaggerate the income and profits. (3) Confirm the income that doesn't exist by false documents. It is also a kind of cheating activity but more serious. This activity may be accompanied with the false certificates, causing complex cases.

2.4 Cheating by adjusting cost and expenses

Some listed companies adjust the current cost and profits by several methods. The common approaches are: (1) Change the production cost and the period cost artificially, adjusting the current profits. (2) Reduce the current cost by controlling the depreciation of fixed assets. (3) Reduce the current cost by changing the amortization of intangible assets and deferred assets. (4) Turn the cost of main business into the period cost or turn the cost that has been sold into the storage cost, reducing the cost of current sales. (5) Adjust the current profits by transferring the period cost to the prepaid expenses or the accrued expenses. (6) Reduce the current expenses by false capital return, increasing the profits.

2.5 Cheating by false assets evaluation

The listed companies exaggerate the profits by controlling the assets evaluation. The common approaches are: (1) Turn the loss assets into profitable assets by false assets evaluation. (2) Confirm the potential loss of assets as the current profits by assets evaluation. The listed companies reduce the bad assets by assets evaluation and turn the loss into the capital reserves. Then, the potential loss in the future can be avoided and the current profits can be exaggerated.

3. Audit recognition to the common falsified methods in financial statements

3.1 Audit recognition to the cheating by related transactions

The independent auditors should analyze the necessity, reasonability, and authenticity of the major or abnormal related transactions, especially the businesses that bring profits to listed companies. According to the substance over form principle, auditors should identify the true meaning of the economic matters. For the abnormal or fabricate related transactions, the certified accountants should maintain the professional prudence, confirming whether there are enough objective evidence to prove the authenticity of the transactions. For example, in order to confirm the transportation of products, auditors can check the transportation expenses. If a large amount of transactions come along with only a small amount of transportation expenses or even no transportation expense, there may be false related transactions. In order to clarify the problem, auditors may investigate the warehouse and make analysis. Certainly, the certified public accountants should maintain the essential professional prudence, abiding by the auditing principles strictly and implementing necessary auditing procedures. Then, they can reveal the abnormal behaviors and financial cheating, because many related transactions without commercial essence are usually companied with the abnormal capital movement.

3.2 Audit recognition to the cheating by assets reorganization

The certified accountants should maintain the professional prudence to the significant profits from the assets reorganization, analyzing the business substance and the fairness of the transaction price. It is important to consider whether there are potential or unfair conditions, especially the reorganization with related parties. In general, the price of fair transaction should be close to the market price. If the transaction price is obviously different from the market price, there may be financial cheating. Meanwhile, auditors should consider whether the time of assets reorganization is reasonable. If the reorganization happens at the end of accounting period, auditors should pay attention to the authenticity and reasonability of this transaction. Then, it is important to consider whether the accounting treatment of assets reorganization is reasonable and whether the income confirmation is proper.

perform the reorganization by assets replacement. On one hand, the parent company gets rid of all or part of bad assets by agreements and the big shareholder or group invests in more good assets, which changes the company's assets structure thoroughly. Or the company exchanges their bad assets with the good assets of parent company or other company, changing the company's financial conditions, and reducing the proportion of bad assets. On the other hand, the company transfers their assets at premium prices and improves its current income. In the reorganization of assets, the premium-price transfer is the convenient way to improve the company's current return, especially if the holding company is powerful. The company sells the assets to its holding company at premium prices, which can make it get higher income.

2.3 Adjusting the return and profit indexes in every accounting period

The popular way to control profits is to adjust the return and profits indexes in every accounting period. If the products need to be equipped or after-sale services and the sale periods are long, the return is not realized at once. Especially for trans-yearly sales, the profits must be distributed in the year. Then, the company may choose to transfer or delay the costs in accounts before the sales have been done. By this way, it can adjust profits effectively.

2.4 Adjusting profits by falsifying virtual transactions

In accounting, enterprises may improve profits by falsifying virtual transactions. For example, Fengle Seed has false records since its listing in market in April, 1997. In ten years from 1997 to 2007, Fengle Seed falsified 191 million Yuan income. At the same time, it writes off the main business income of 11 million Yuan. In accumulation, it falsifies the main business cost of 22 million Yuan. And the virtual main business income is 180 million Yuan. And the falsified main business profits are 158 million Yuan. Besides, Fengle Seed turns the return from securities and relevant allowances into main business income and relevant accounts receivable. However, its real return from securities is lower than falsified main business profits in every year. Thus, the balance forms the virtual profits of each year. The accumulated virtual profits reach 40.06 million Yuan, etc.

2.5 Cheating by improper accounting policies and accounting evaluation

The management may choose improper accounting policies and evaluations to control profits. For one transaction, the company can choose different accounting treatments. And China's specific accounting principles do not concern every aspect of corporate accounting. Therefore, many listed companies can control profits and falsify financial statements by choosing or changing accounting policies and accounting evaluations. For example, Yutaibai turned a loan of 86.04 million Yuan into a project in construction in 2006. But in fact, this project had begun in 2005. And in 2006 there were qualified products already. By this way, it makes the profits rise by more than 80 million Yuan.

3. The auditing recognition to falsified methods in financial statements

3.1 Identifying the related parties and related transactions

In general, the listed company in China is supported by a giant group. Similar to a big family, there are complex relations between child companies, brother companies, and parent company. As the managers face financial pressures, they may adopt the related transactions. For this kind of transaction, there are only in form but not in practice. Sometimes, the prices and conditions for payment are special. In hard time, it is easy to find that two parties can not fulfill the transaction considering their real financial conditions. Enron Corporation lists falsified profits, which are realized mostly by related transactions. All these facts make it more difficult for CPA finding related parties and their transactions. Therefore, the CPA must know the ownership relations of listed company, question more on abnormal transactions, check conference records carefully, consult the management agency with strategies, and study more cases concerning related transactions. By this way, the CPA can be more capable of finding related transactions.

Considering potential related transactions, we should investigate these issues: (1) whether there is a fixed process for the management level, by which the CPA can recognize related parties and related transactions; (2) whether there are sufficient information to know and evaluate the relations of two parties in transaction; (3) whether the two parties have motives or abilities to execute the transaction; (4) whether the accounting treatment is based on the essence of transactions (including any abnormal condition); (5) whether relevant information, such as the transaction nature, contents, and relations, is released completely.

3.2 Analyzing the reorganization of assets

Under the fierce market competition, some enterprises may be in loss or weak in winning profits due to bad management, and harmful influences from external elements. Capitals flow slowly. In this condition, the enterprise may reach an agreement with creditors to get rid of all or part of bad assets, or exchange the bad assets with the good assets of the parent company or the shell company, in order to change the financial conditions,

reducing the proportion of bad assets. If an enterprise changes its assets structure significantly, the auditors should pay more attention to the necessity and reasonability of changes. If an enterprise performs assets reorganization or transfer in a report period, the auditors should focus on the impacts of assets reorganization or transfer on the enterprise. By analyzing its necessity, reasonability, and legality, the auditors can judge whether the enterprise adjusts profits or avoids taxes by assets reorganization and assets transfer. If an enterprise invests in other fields, gets mortgage loans, and commute debts by its assets in a report period, the auditors should notice the balance between relevant assets' evaluation values and accounting values. By analyzing its necessity and reasonability, the auditors can judge whether the enterprise adjusts the value of assets by assets evaluation.

3.3 Checking on trans-period incomes especially

For the balance sheet, the management level usually takes the profits in current year as the profits in next year or the profits in next year as the profits in current year. For example, in Nov. 2008, the global financial crisis happened. Most enterprises were in loss in Nov. 2008. In order to make monthly profits in balance, the management level usually adjusts the part of profits in Jan. 2009 to the year 2008, balancing the profits in every month in 2008, and increasing the profits virtually. In contrast, if profits in certain year are sufficient, the management level may adjust profits in last month in this year to the first month in next year, balancing the profits, which can help the enterprise to win more investors. Considering these conditions, the auditors should focus on major abnormal trans-period transactions, check the sales voices and relevant bills, ensuring that whether certain income is reflected in the balance sheet.

3.4 Analyzing the abnormal profits

Sometimes, the managers want to beautify the business performances or achieve the expected goal by convincible sales. The auditors should be careful on abnormal or irregular transactions. Contracts or terms are not so convincible. They must check all items by their special senses. For example, as for a potential irregular transaction, no matter whether the sum is large or not, the auditors should check on the original documents and consult for creditors and debtors to testify the completeness of the transaction. Besides, we should pay special attentions to possible agreements outside the contract. If an enterprise's main income is from other business income, investments, or non-business income, the auditors should care about the authenticity of transaction, judging whether the enterprise cheats or not.

3.5 Focusing on whether accounting policies and evaluations are in accordance with accounting principles

Accounting policies are specific rules in accounting check and accounting treatments adopted by enterprises. Whether accounting policies are proper or not is vital for the enterprise's accounting treatments, or even whether the accounting profits can be calculated properly or not. In common, the listed company can control profits and falsify business performances by choosing or changing accounting policies and evaluations.

4. Conclusion

The falsified financial statements seriously disturb normal social economic activities, influencing investors' analysis and estimations on kinds of economic information, misleading the investors, creditors, and relevant decision-makers. As a result, the financial statements of listed company and relevant auditing reports are lack of pre-warning effects, adding more audit risks, hurting China's capital market, and disturbing normal social economic orders.

In a word, financial statements users should recognize and defend against listed companies' illegal activities concerning financial statements, narrowing the space for falsified methods by accounting principles and relevant regulations, and ensuring the normal development of whole social and economic orders.

References

Tu, Chuanfen. (2007). How to defend frauds in financial statements. *Auditing & Finance in Jiangxi*. No.9.

Wang, Huacheng & Jiang, Shuncai. (2007). Information asymmetry and CPA's credit construction. *China Certificate Public Accountant*. No.8.

Huang, Peng. (2006). Game analysis of listed companies' fraudulent financial statements. *China Certificate Public Accountant*. No.11.

Zhang, Limin & Chen, Xiaolin. (2007). Reason analysis of fraudulent financial statements. *China Certificate Public Accountant*. No. 8.

Li, Xuefen. (2008). Measures for recognizing and defending fraudulent financial statements. *Commercial Accounting*. No.2.

Assets Growth, Foreign Ownership and Type of Industry in Multinational Companies

Mehdi Rasouli Ghahroudi (Corresponding Author)

Graduate School of Systems and Information Engineering, University of Tsukuba

1-1-1 Tennodai, Tsukuba-Shi, Ibaraki-Ken, 305-8573, Japan

Tel: 98-912-302-3403   81-29-853-5703   E-mail: rasouli53@hotmail.com

Stephen Turnbull

Graduate School of Systems and Information Engineering, University of Tsukuba

1-1-1 Tennodai, Tsukuba-Shi, Ibaraki-Ken, 305-8573, Japan

E-mail: turnbull@sk.tsukuba.ac.jp

Yasuo Hoshino

Graduate School of Accounting, Aichi University,

2-10-31 Tsutsui, Nagoya-shi, 461-8641, Japan

E-mail: hoshino@aichi-u.ac.jp

and

Graduate School of Systems and Information Engineering, University of Tsukuba

1-1-1 Tennodai, Tsukuba-Shi, Ibaraki-Ken, 305-8573, Japan

Abstract

This empirical study explores first the relationship between type of industry and subsidiary age, export ratio and MNCs' firm factors. Second, we examined the impact of country of origin, foreign ownership and parent's specific factors on asset growth ratio (AGR). Based on data derived from 2500 foreign companies in Japan, the findings show that the factors of foreign ownership, experience in host market, country of origin, export and parents company's sales and the number of employees as a proxy of firm size have significantly effect on AGR. Also our finding shows that foreign companies in manufacturing industries are more likely to be as an international joint venture with a foreign manager and higher ratio of import and greater number of foreign employees. Finally, contrary to our expectations, we found that the total asset of parent company has negatively associated with type of industry. In the other word, firms in service industries are more likely to have greater total asset than those in manufacturing sectors.

Keywords: Asset growth ratio, Foreign ownership, MNCs, Country of origin

1. Introduction

The multinational company has several choices of entry mode, ranking from the market (arm's length transactions) to the hierarchy (wholly owned subsidiary). The multinational companies (MNCs) choose internalization where the market does not exist or functions poorly so that transactions expenses of the external route are high. The subsistence of a particular know-how or core ability is an asset that can give rise to economic rents for the firm. These rents can be earned by licensing the firm specific advantages to another firm, exporting products using these firm specific advantages as an input, or adjustment subsidiaries abroad.

Considerable research efforts have been made to test the importance of firm specific versus industry structure factors in relation to performance variation (e.g. Hawawini et al., 2003; Roquebert et al., 1996). Generally, the effects of firm factors on performance variability have been shown to be more important than industry effects.

Building upon previous research, the present study investigates the firm specific factor versus industry structure. However, a decidedly different approach is taken. First, the vast majority of foreign firms in Japan come from the United States and Europe. Second, there are very few researches that used the asset growth for performance appraisals. Third, we build hypotheses to test key aspects of the firm's factor theories in the stream. Fourth, parent's firm factors and subsidiary factors are operationalized and measured to determine their effects on the asset growth ratio. Lastly, manufacturing versus services firms are compared, which, surprisingly, has rarely been done.

Asset performance means that a company can either earn a higher return using the same amount of assets or is efficient enough to create the same amount of return using fewer assets.

Hymer (1976) proposed that firms exist because they possess unique assets in terms of products, processes, and skills. Examples of unique firm-specific assets and intangible wealth include established brand names, the firm's reputation, favored access to suppliers and skilled manpower, and superior products and processes. These resources, when employed in a host country during overseas entry, serve to reduce rivalry, as they are imperfectly imitable. The poor imitability of these unique assets enables a firm to gain competitive advantage or market power over its rivals. Hence, the foreign entrant can be viewed as a special case of the multi-plant firm operating in different countries due to market imperfections (Horaguchi and Toyne, 1990). Such firms integrate industries by owning assets or controlling activities across countries as a result of structural market imperfections and transaction cost advantages

Nevertheless, foreign firms are likely to be at a disadvantage in terms of understanding the local environment and culture. The international business literature is full of examples of foreign entrants stumbling and failing due to lack of managerial skills or knowledge of local contacts, regulatory issues, political nuances, customer idiosyncrasies, and other issues usually unknown to new foreign entrants. These disadvantages are commonly referred to as liabilities of foreignness.

This empirical study explores first the relationship between type of industry and firm's factors including ownership, experience, import and export ratio and MNCs' factors. Second, we examined the impact of country of origin, foreign ownership and parent's and subsidiary's factors on the asset growth ratio (AGR).

The rest of the paper is structured as follows. We begin with a review of the literature, and then develop five testable hypotheses relevant to the industry structure and asset growth. Next, we describe the data and estimation methodology, and report the empirical results. We conclude with a discussion of the results.

2. Theoretical background and hypotheses

Firms seeking to establish a presence in the region also faced the decision of how much equity to commit. Empirical studies using cross-country data show that locational and modes of entry choices of MNEs are significantly influenced by host country characteristics. For example, Altomonte (2000) and Bevan and Estrin (2004) use project-specific investment data primarily from European firms, as well as some Asian and US MNEs, to analyze the determinants of foreign direct investment to the region. In addition to factors such as country risk and market size, Tihanyi, Griffith, and Russell (2005) highlight gravity factors and cultural distance as important components of investment decision. For US firms, advantages such as geographical and cultural proximity are less apparent than for their European counterparts. Yet analyses of market response to early investment announcements by US firms (e.g., Lang, Ofek & Stulz, 1995) find that, on average, shareholders of US firms experience positive excess returns when they announce expansion plans in transition economies. (Paul and Wooster, 2008)

Eclectic theory suggests that in developed countries, wholly owned subsidiaries have the highest long-term potential (Dunning, J.H., 1988). Erramilli et al. (1997) found that even the firm-specific advantages of Korean MNEs were dependent on host country location. Therefore, the influence of host country characteristics on entry mode, of which industry structure is an underlying element, is well established.

Previous research suggests that a firm's capacity to earn profits is highly correlated to the attractiveness and profitability of the industry in which the firm operates (Schmalensee, 1989). Hence, when entering an overseas market, a foreign firm will attempt to choose an entry mode that would help overcome industry barriers that might prevent it from succeeding in that overseas market. Therefore, other conditions remaining equal, one would predict that industry characteristics of the host country would play a role in determining a firm's choice of entry mode (Elango & Sambharya, 2004).

2.1. Industry and firms factors

An important benefit of wholly owned is that a foreign firm can be in control of an established firm, thereby overcoming industry structural barriers in the host country and the liabilities of foreignness rather quickly. Also wholly owned does not create new industry capacity, as do greenfield investments, and therefore does not increase industry supply. Wholly owned subsidiaries by the foreign firm result in ownership by a single firm. An international joint venture is a partnership wherein the venture (business) is jointly owned by two or more firms. It involves two or more firms investing in or sharing resources, thereby allowing for some degree of flexibility in the sourcing and deployment of resources to overcome industry barriers and minimizing the risks of liabilities of foreignness. While it is hard to accurately predict the influence of a joint venture on industry supply, joint

ventures allow for risk pooling, thereby enabling the entrant to more effectively face industry structural barriers and risks due to liabilities of foreignness.

Previous research suggests that a firm's capacity to earn profits is highly correlated to the attractiveness and profitability of the industry in which the firm operates (Elango & Sambharya, 2004). Another notable study was by Caves and Mehra (1986), who looked at 138 entry decisions of foreign firms and considering many industry variables along with firm level variables. The two modes they looked at were mergers and greenfield entrants while controlling for joint ventures. They concluded by claiming that the type of goods produced (durable vs. nondurable), firm size, product diversity, and the extent of multi-nationality were likely predictors of acquisition as preferred entry mode, depending on the industry structure.

H1.*Multinational companies in manufacturing industry are more likely to enter a host market through wholly owned subsidiaries*.

Companies in different industries face different competitive challenges, causing them to use different approaches to international venturing. When the MNC is diversifying through a FDI, uncertainty and information costs may be higher, so that less control ownership modes should be preferred. Foreign investors are also more likely to enter a foreign market through joint ventures or strategic alliances if they are diversifying into a different industry, as they need tacit industry-specific knowledge, which is subject to relevant transaction costs and it also costly to acquire on the market (Mutinelli & Piscitello, 1998)

Hence, when entering an overseas market, a foreign firm will attempt to choose an equity ownership that would help overcome industry barriers that might prevent it from succeeding in that overseas market. Therefore, other conditions remaining equal, one would predict that industry characteristics of the host country would play a role in determining a firm's choice of entry mode.(Elango & Sambharya, 2004)

H2a. *Foreign companies in manufacturing industry are more likely to have a greater number of foreign employees than services industry.*

A common barrier to entry in manufacturing industries is scale economies. Scale economies refer to the need to build a plant at a particular size to produce goods at a reasonable cost. Stated differently, this concept refers to the change in operational costs associated with the change in size of the firm. According to Porter (1980), scale economies arise due to the ability of the firm to perform value activities efficiently at a larger volume. Scale economies result from less than proportional increases in costs or increased efficiencies in operation associated with particular levels of production volume.

Multinational companies need to use their technical employees or expert managers in order to build a manufacturing subsidiary in a host country. Manufacturing firms in subsidiary level are encouraged to hire a number of parent company's employees in order to technology transfer and employee training. MNCs build a manufacturing firm and invest in a host market to producing high demanded products in host market or goods with lower production costs.

When plants are built to scale, the production costs of goods are lowest when operated at capacity (Harrigan, 1981 and Scherer, 1980). Industries characterized by a manufacturing structure have significant barriers to entry, as entrants are forced to make significant investments to enter the industry at a particular size. Second, new entrants could face a strong competitive reaction from existing incumbents due to these firms' sunk costs. Third, the creation of new capacity in such industries would hurt all firms, including the entrant. In manufacturing industries, entrance through wholly owned or joint ventures can significantly minimize risk. Therefore, the presence of manufacturing industry requires large investments to be made by the foreign firm, encouraging firms to enter foreign markets through joint ventures or wholly owned subsidiary.

To the best of our knowledge, no study on ownership and foreign investment has incorporated this important explanatory variable.

H2b. *Foreign companies in manufacturing industry are more likely to have greater ratio of import.*

Elango & Sambharya (2004) argue that in industries characterized by import intensity, firms are likely to prefer wholly owned ownership as an entry strategy.

The influence of import on industry profitability and firm behavior is well known in the literature (e.g., Cubbin and Geroski, 1987 and Turner, 1980). Though this variable has not been specifically tested in the entry mode literature, other studies on this topic (e.g., Caves and Mehra, 1986; Porter, 1987) have incorporated import market share in other variables (such as industry concentration) in entry mode models (Note 1). As this study focuses on type of industry, we decided to test the relationship between the import ratio and industry

characteristics. In industries with high levels of import, foreign entrants are likely to use greenfield operations as a favored mode of entry over wholly owned or joint ventures. This will happen because foreign entrants might be more confident in succeeding by setting up operations on their own, considering the fact that they or other foreign firms have had some degree of success selling their products in the host nation (Elango & Sambharya, 2004)

2.2. Asset growth

Asset is a business's ability to take productive resources and manage them within its operations to produce subsequent returns. Asset performance is typically used to compare one company's performance over time or against its competition. Possessing strong asset performance is one of the criteria for determining whether a company is considered a good investment.

Analysts use metrics like the cash conversion cycle, the return on assets ratio and the fixed asset turnover ratio to compare and assess a company's annual asset performance (asset growth). Typically, an improvement in asset performance means that a company can either earn a higher return using the same amount of assets or is efficient enough to create the same amount of return using fewer assets.

Hennart and Reddy (1997) reported that joint ventures would be preferred by firms in instances where non-desirable assets are linked with desirable assets, when the Japanese firm has previous experience, when there is good product compatibility, and where there is a growing market. Although these studies found support for the notion that industry structure influences the equity ownership choice of firms, they only used two variables or less to capture that effect.

The ownership advantage explains a firm's resource commitment and refers to assets power that a firm must possess to compete successfully with host country firms in their own markets, which can be tangible and intangible such as firm size, multinational experience, proprietary products or technologies, specialized know-how, and skills by its ability to innovate or to develop differentiated products, (Dunning, 1995 and Nitsch et al., 1996). The size of parent's firm reflects its capability for absorption of the high costs of marketing, for enforcing patents and contracts, and for achieving economies of scale in foreign markets. Empirical evidence indicates that the impact of firm size on FDI is positive (Cho, 1986 and Kimura, 1989). Another form of asset power, a firm's level of multinational experience, has also been shown to influence entry choices (Agarwal and Ramaswami, 1992) and performance (Siripaisalpipat and Hoshino, 2000). As a firm expands its operations overseas, it learns more about how to cope with different environment in terms of economic, political, and legal systems as well as the cultural distances. This ownership advantage generated corporate performance (Delios and Beamish, 1999 and Gomes and Ramaswamy, 1999), and consequently reflected on subsidiaries performance. Finally, intangible assets are necessary to compete efficiently in a certain business line or a given industry (Siripaisalpipat and Hoshino, 2000). A firm will enjoy competitive advantages over its rival if it owns a proprietary product, specialized technology or knowledge, specific know-how, and management capabilities (Kimura and Pugel, 1995).

H3. *The greater the ratio of sales growth in MNCs, the greater ratio of asset growth will increase.*

The above hypothesis, in the other words, assumes that the MNCs' sales growth ratio has significantly impact on the ratio of asset growth.

One of the measurements for performance appraisal is the rate of sales growth. We assume that the ratio of asset growth is related to its sales growth rate. In other word, the increase of sales growth has effect on the ratio of asset growth.

The poor imitability of these unique assets enables a firm to gain competitive advantage or market power over its rivals. Hence, the foreign entrant can be viewed as a special case of the multi-plant firm operating in different countries due to market imperfections (Horaguchi and Toyne, 1990). Such firms integrate industries by owning assets or controlling activities across countries as a result of structural market imperfections and transaction cost advantages.

Nevertheless, foreign firms are likely to be at a disadvantage in terms of understanding the local environment and culture. The international business literature is full of examples of foreign entrants stumbling and failing due to lack of managerial skills or knowledge of local contacts, regulatory issues, political nuances, customer idiosyncrasies, and other issues usually unknown to new foreign entrants. These disadvantages are commonly referred to as liabilities of foreignness.

H4. *Foreign companies with more experience in host country are more likely to have greater ratio of asset growth.*

Experience in the host country may interact differentially in terms of performance (Delios & Beamish, 2004; Uhlenbruck, 2004, Rasouli et al., 2008). Brouthers et al. (2000) found a negative relationship between experience and performance, while Luo and Peng (1999) argued that experience leads country specific knowledge to overcome the liability of foreignness; as a result the firm's performance improves. Given that firms with longer experience are considered to enjoy greater experiential and tacit knowledge age is considered to provide a positive relationship with exports and capabilities.

Entry in foreign markets and the related uncertainty are also crucial for international neophytes which lack experience in managing foreign operations. The lack of international experience may cause the novice investor setting up a wholly owned subsidiary to take inappropriate decisions on matters such as the choice between producing certain inputs locally or importing them from the parent company, the location of plants in the foreign country, production levels, adaptation of products and services to local market requirements, management of relations with workforce, suppliers, customers, banks, local authorities (Mutinelli & Piscitello, 1998). The firms acquire increasing capabilities and knowledge about how to manage foreign operations and to correctly assess the risks and the expected economic returns of foreign investment. This is particularly true when the parent company already manages other subsidiaries in that country or if it has entered before other countries which are culturally similar to the country being entered.

H5. *Country of origin is significantly associated with the asset growth ratio.*

It is worth mentioning the role of differences in the geographical spread of FDI. Ceteris paribus, high physical and psychical or socio-cultural distance between the parent's home country and the target country engenders high information needs because of the uncertainty perceived by executives and the problems in transferring values, management techniques and operating methods from the home to the host country (Mutinelli & Piscitello, 1998).

Eicher and Kang (2005) present a theoretical model of the multinational firm's optimal entry mode. They show that the choice between FDI, acquisition, or exports depends on host country characteristics such as market size, FDI fixed costs, tariff levels, and transportation costs. The authors argue that expansion through a sales presence is more likely when firms invest in smaller markets, but as tariffs and transportation costs rise, acquisitions and Greenfield investments (such as new plants and wholly owned subsidiaries) become more likely.

Erramilli et al. (1997) found that even the firm-specific advantages of Korean MNEs were dependent on host country location. Therefore, the influence of host country characteristics on entry mode, of which industry structure is an underlying element, is well established.

3. Research design and methodology

The empirical study examines the relationship between the type of industry entered by MNCs to a host country and type of ownership, import ratio, firm's size and the number of foreign employees. Also we examine the effect of experience in host country, foreign ownership and country of origin on the asset growth ratio (AGR).

3.1. Sample and data collection

The study focused on a broad set of foreign firms in Japan in the both the manufacturing and service industries. Manufacturing firms operated in industries such as food and beverages, textiles, wood and paper products, chemicals, printing and publishing, metal products, and machinery. Services firms operated in industries such as construction, wholesale trade, retail trade, transport and storage, and business services.

The primary data source for this study was derived from the Toyo Keizai Inc. Foreign Affiliated Companies in Japan: A Comprehensive Directory (GaishikeiKigyo), which compiles information on the foreign subsidiaries in Japan that have been established by foreign companies across the world. The database includes subsidiaries in manufacturing and service industries. However, it includes a sample of 2500 foreign subsidiaries established by MNCs from fifty two countries which covering the period till 2006. A summary of data distribution presented in Table 1 based on year of entry, equity ownership and country of origin. From the initial sample of foreign companies in Japan, because of missing data for some variables, the final sample size for the research analysis was reduced to 293 cases for the analysis of asset growth ratio and type of industry.

Insert Table 1 Here

As shown in Table 1, in the years between 1903 and 1970 the percentage of wholly-owned subsidiaries is 43% while the international joint venture is 57%. For the period of 1991 to 2000 and the last period (2001-2006), the percentage of wholly owned subsidiary, respectively with 67% and 61%, showed the multinational companies were interested in keeping a larger equity ownership of subsidiaries in Japanese market. It seems, MNCs were

interested in enter as a wholly owned firm, based on the sample distribution. As the Table 1 shows, 85% of foreign companies in Japan come from North America (United State and Canada) and Europe with 45% (1580) and 40% (1412) respectively. Therefore, recently, multinational companies are more interested in holding the majority of equity of their subsidiaries in Japan as a developed country.

Insert Figure 1 and Table 2 Here

Figure 1 shows the trends of equity ownership in five periods of foreign investment in Japan till 2006 by multinational companies. As shown in Figure 1, the number of international joint venture companies have slump during recent periods. However, the majority of foreign companies are wholly owned subsidiaries. The wholly owned firms have dramatically increased from 1980s.

As the Table 2 shows, we find that the machinery industry (10.1%), Electronic & electrical equipment (9.5%), software (7.5%), Chemistry (7.4%) and the other manufacturing industry (9.7) have the higher percentage of foreign investment in Japan.

3.2. Description and measurement of variables

3.2.1. Dependent variables
Zahra (1991) indicates that companies in different industries face different competitive challenges, causing them to use different approaches to international venturing. The payoff from international venturing might vary also by industry type.

For this study we used two dependent variables. First, the type of industry which is dummy variable coding a value of 1 for manufacturing firms and 0 for the services firms. The second dependent variable is asset growth ratio was measured by the ratio of average increase in firm's total asset of five years leading to 2006.

3.2.2. Independent variables
In this study we measured the independent variables as follows:

The first variable is the experience in host country. As in Makino and Delios (1996) and Delios and Beamish (2001), we use the parent company's experience in the host country which is computed as the total number of firm-years of experience in the host country for one foreign investment.

Type of ownership: in this study, we divided the ownership in two categories and used a dummy variable; a subsidiary is considered to be wholly owned and coded 1 if has 100 percent ownership and otherwise coded 0 as an international joint venture.

The existence of foreign manager is a dummy variable that takes a value of 1 if the subsidiary's manager is Japanese and 0 otherwise. Foreign employee was measured by the number of non Japanese employees in subsidiary. The subsidiary's intensity of foreign employment is the ratio of foreign employees to total number of employees for each subsidiary. New graduate is the number of new graduate employees in a foreign company.

The variable for the country of origin categorized in four regional categories including United State and Canada, Europe, Asia and others based on our data distribution and countries location. It was measured by using a dummy variable for each category which takes the value from 1 if the nationality of foreign company is in the category and otherwise 0.

Several measures have been used by researcher to proxy for firm size, e.g., total assets (Yu and Ito, 1988), equity (Cho, 1985), exportation sales and total sales (Kimura, 1989; Agarwal and Ramaswami, 1992) expenditure in R&D (Makino and Delios, 1996) and number of employees (Demirbag et al., 2007, Rasouli and Hoshino, 2007). However, a previous test on the current sample shows that these variables have a high degree of correlation. Because of that, the amount of total assets, sales and parent's employee, were chosen as the indicators of firm size.

We employed parent's sales growth ratio which is the average of five years growth rate of parent company's total sales. Import ratio and export ratio variables are determined by the ratio of the amount of import and export from affiliated company.

3.2.3. Control variables
To segregate the effect of firms specific factor on AGR, we incorporated five control variables into the regression model: three at the subsidiary level and two at the parent firm level. At the subsidiary level, we incorporated capital, gross sales, and the number of employees based on a review of firm variables studied in the foreign investment literature (e.g., Harzing, 2002; Kwon and Konopa, 1992). At the parent's firm level, we incorporated parent's employee and parent's gross sales as control variables based on past research (Hennart and Larimo, 1997). Needless to say, these five variables represent important firm specific advantages and would play

a part in influencing foreign firms' factors towards a greater asset growth. Therefore, they need to be controlled in hypothesis testing.

In light of the controversy involving the defining criterion for different sizes, all control variables in this study can be used as the proxies for the firm's size.

The rationale for the inclusion of firm size is that larger firms are likely to have greater resources and ability to absorb higher risk compared to smaller firms, thereby influencing asset performance differentially.

Since the distribution of monetary values usually do not follow the normal distribution curve, the use of natural logarithm of the quantity is applied for firm's gross sales and total assets, parent and subsidiary's employees and capital; to smooth the values and to bring them closer to the normal distribution as well as to avoid spurious effect.

Insert Table 3 Here

Table 3 shows the name of independent variables used in this study and we have explained shortly about each variable's definition.

4. Empirical analysis and discussion

As a preliminary step, Table 4 shows a descriptive statistics of variables and the correlations of all the variables in the regression models are reported in Table 5. the results of Collinearity statistics are shown in Table 6 which there is no support of existence of multicolinearity in the variables of this study.

Insert Table 4, Table 5 and Table 6 Here

We used a binary logistic regression for the type of industry's analysis. Binomial (or binary) logistic regression is a form of regression which is used when the dependent is a dichotomy and the independents are of any type. Continuous variables are not used as dependents in logistic regression. Logistic regression can be used to predict a dependent variable on the basis of continuous and/or categorical independents and to determine the percent of variance in the dependent variable explained by the independents; to rank the relative importance of independents; to assess interaction effects; and to understand the impact of covariate control variables. The impact of predictor variables is usually explained in terms of odds ratios.

Based on Omnibus test result for our binary logistic regression, the model is significant in one percent. Omnibus tests of model coefficients reports significance levels by the traditional chi-square method and is an alternative to the Hosmer-Lemeshow test. It tests if the model with the predictors is significantly different from the model with only the intercept. The omnibus test may be interpreted as a test of the capability of all predictors in the model jointly to predict the response (dependent) variable.

Insert Table 7 Here

As Table 7 presents, the experience in host market (EXPRNC) has a positive significant ($p<0.05$) with type of industry. The type of ownership (WOS_IJV) and new graduate (N_GRAD) are negatively associated with type of industry ($p<0.05$ and $p<0.01$ respectively). It is contrary to our expectation based on hypothesis H1. Therefore, MNCs are interested in holding an international joint venture when the subsidiary is in a manufacturing industry. In the other words, multinational companies in service industry are more likely to enter a host market through wholly owned subsidiary.

As shown in Table 7, the number of foreign employee has a positive significant relationship with type of industry. This supported our hypothesis H2a and implies that foreign companies in manufacturing industry are more likely to have a greater number of foreign employees than services industry. However, the results show a positive significant relation between foreign manager (F_MNGR) and parent company's gross sales (P_SALS) with type of industry. In the other words, firms in manufacturing industry are more likely to have a foreign manager and greater gross sales.

Our result analysis showed that parent company's total asset (P_ASSET) is negatively associated ($p<0.01$) with type of industry. It implies that foreign companies in service industry are more likely to have greater amount of total asset in compare with manufacturing industry.

Larger companies usually have the slack resources for international venturing. Size also gives these firms the market power to preempt competitors' entry and reap higher than normal rates of performance. Conversely, some larger organizations are bureaucratic and therefore slow to adapt to change through international venturing activities (Block and MacMillan, 1993 and Hastings, 1999).

Insert Table 8 Here

To test the hypotheses related to asset growth ratio, we ran a multiple linear regression analysis which is shown in Table 8. The analyses tested three models. First, in Model 1, all independent variables and one part of country of origin (US & Canada) were regressed on the study's control variables. Second, in Model 2, we added country of origin's variables and excluded the parent company's factor in the regression model. Third, in Model 3, parent company's factors were added to the variables already in Model 2. However, we regressed all variables which can effect on AGR based on our hypotheses.

As the results illustrated on Table 7, the sales growth ratio in all three models has a significant effect (p<0.05) on asset growth ratio on five percent significant level. However, the ratio of parent's sales growth is positively associated with AGR. These support our hypothesis H3 in this study which implies that firms with the greater ratio of sales growth are more likely to have a greater ratio of asset growth. As Model 3 shows, the experience in host market is significantly associated with AGR. Therefore, it supported the hypothesis H4. In the other words, foreign companies with the more experience in host market (older subsidiaries) are more likely to have greater ratio of asset growth. As we expected, variables related to country of origin (US & Canada, Europe) are significantly associated with AGR. It implies that the nationality of foreign companies has a significant effect on their asset growth rate and this support our hypothesis H5 in this empirical study. Also the new graduate has a positive significant relationship with AGR on one percent significant level.

The regression result Model 3 shows that foreign ownership ratio is significantly associated with the ratio of asset growth. However, the firms with the greater ratio of foreign ownership are more likely to have a greater AGR. The ratio of export has a negative significant with the AGR on 1 percent significant level. Therefore, firms with the lesser export rates have the greater asset growth rates.

Based on the result of multiple linear regression analysis to examine the impact of type of industry,experiences, foreign ownership ratio, country of origin, import ratio, export ratio, new graduate, sales growth ratio, sales growth ratio, foreign employees, parent's sales growth ratio, on likelihood of the ratio of asset growth, the following model can be explained:

Asset Growth Ratio = f (experience, foreign ownership ratio, country of origin, export ratio, new graduate, sales growth ratio, foreign employees, parent's sales growth ratio)

The model can be expressed as:

$$\mathbf{AGR} = \beta_0 + \beta_1 EXPRNC + \beta_2 FOWNR + \beta_3 COUNTRY + \beta_4 EXPORT + \beta_5 NGRAD$$
$$+ \beta_6 FEMPLY + \beta_7 SGR + \beta_8 PSGR + \varepsilon$$

Where, AGR is the asset growth ratio, $\beta_1 EXPRNC$ is the experience in host market, $\beta_2 FOWNR$ is foreign ownership ratio, $\beta_3 COUNTRY$ is country of origin, $\beta_4 EXPORT$ is the ratio of export, $\beta_5 NGRAD$ is the new graduate, $\beta_6 FEMPLY$ is foreign employees$\beta_7 SGR$ is sales growth ratio and$\beta_8 PSGR$ is parent's sales growth ratio andβ_i is the coefficient of the independent variables. The β_0 refers to the constant and finally$\varepsilon$is the disturbance term.

As the results of Table 8 shown, the all three models were significant to one percent level. International venturing enhances a firm's ability to exploit its existing capabilities and resources while exploring new growth options. Exploitation centers on using the firm's existing knowledge, capabilities and resources in current and new foreign markets (Audia et al., 2000). However, excessive focus on the exploitation of existing capabilities can lead to organizational myopia and stagnation. International venturing reduces this risk by promoting exploration activities. Foreign owned companies and international alliances allow the firm to identify emerging technological, marketing, and competitive trends in foreign markets. This can stimulate innovation and enhance the variety of the firm's strategic options.

5. Conclusion and limitations

Our results show a positive relationship between import ratio and type of industry. However, manufacturing firms have higher import in compare with firms in service industries. Contrary to our expectations, the type of ownership is negatively associated with type of industry. In the other words, multinational companies in service industry are more likely to enter a host market through wholly owned subsidiary. The results of industry structure analysis showed that foreign companies in manufacturing industry are more likely to have a greater number of foreign employees than services industry.

The Resource-based Theory emphasizes factors internal to the firm. It is argued that acquisition and retention of resources that are rare, non-substitutable and, in combination, difficult to imitate are a source of economic rent and accounts for the heterogeneity of firms in any industry (Reed and DeFillipi 1990; Mahoney and Pandian

1992; Oliver 1997).

According to this view, a company's competitive advantage derives from its ability to assemble and exploit an appropriate combination of resources. Sustainable competitive advantage is achieved by continuously developing existing resources and creating new ones and capabilities in response to rapidly changing market conditions. According to resource-based theorists like Grant (1991) and Peteraf (1993), firms can achieve sustainable competitive advantage from resources like strategic plans, management skills, tacit knowledge, capital, employment of skilled personnel among others. The assets and resources owned by companies may explain the differences in performance. Resources may be tangible or intangible and are harnessed into strengths and weaknesses by companies and in so doing lead to competitive advantage.

We found that the total asset of parent company has negatively associated with type of industry. In the other words, firms in service industries are more likely to have greater total asset than manufacturing industry. Our findings indicate that experience in host market; foreign ownership and new graduate have a positive and significant impact on AGR. Based on our results, country of origin of foreign companies has a significant effect on the ratio of asset growth. Our findings suggest that foreign companies from North America including US and Canada outperform subsidiaries from Europe and Asia. In the other words, North American's multinational companies have greater performance and the ratio of assets growth in Japan. It implies that country of origin matters for assets growth and MNCs have different strategy to invest and asset management and consequently, they have different asset performance. However, foreign companies from United States have greater AGR versus European subsidiaries in Japan.

Cultural distance is the difference in the values and beliefs shared between investing country and host country. Large cultural distances lead to high transaction costs for multinationals investing overseas (Chen and Hu, 2002) and may limit the effectiveness of behavioral based control mechanisms that rely upon trust, value congruence, and respect (Woodcock et al., 1994)

Therefore, foreign companies with greater ratio of foreign ownership and higher experience in host market and greater sales growth rate and lower ratio of export are more likely to have greater ratio of asset growth (Note 2).

This study has several limitations, related to its validity and scope. First, the scope of our conclusions is limited to the context of foreign companies in Japan. The second limitation is related to the database used in this study which has limited data about firm assets. Therefore, our study covered 293 firms out of 3500 foreign companies for analysis of asset growth ratio. Third, we employed limited number of variables based on our data bases in order to analyze of AGR. Therefore, there are more variables which could affect the results of asset growth ratio. Future studies that use moreindependent variables to measure the asset performance can add to this study in order to improve the validity of related findings.

Acknowledgment

References

Altomonte, C. (2000). Economic determinants and institutional frameworks: FDI in economies in transition, Transnational Corporations, 9(2), 75-106.

Audia, P. G., Locke E .A. and Smith K.G.. (2000). The paradox of success: An archival and a laboratory study of strategic persistence following a radical environmental change, *Academy of Management Journal*, 43, 837-853.

Brouthers, L.E., Brouthers, K. and Werner, S. (2000). Perceived environmental uncertainty, entry mode choice and satisfaction with EC-MNC performance, *British Journal of Management*, 11, 183–195.

Caves, R.E. and Mehra, S.K. (1986). Entry of foreign multinational into U.S. manufacturing industries. In: Porter, M.E., Editor, Competition in Global Industries, Harvard Business School Press, Boston, MA, 449–481.

Chen, H., & Hu, Y. M. (2002). An analysis of determinants of entry mode and its impact on performance, *International Business Review*, 11(2), 193-210.

Cho, K.R. (1986). Determinants of international banks, *Management International Review*, 26, 10-23.

Cubbin, J. and Geroski, P. (1987). The convergence of profits in the long run: Inter-firm and inter-industry comparisons. *Journal of Industrial Economics*. 35, 427–441.

Delios, A. & Beamish, P. (1999). Geographic scope, product diversification, and the corporate performance of Japanese firms, *Strategic Management Journal*, 20,711-727.

Delios A, & Beamish P. W. (2001). Survival and profitability: the role of experience and intangible assets in

foreign subsidiary performance. *Academy of Management Journal,* 44(5): 1028-1038.

Delios, A., and Beamish, P.W. (2004). Joint venture performance revisited: Japanese foreign subsidiaries worldwide, *Management International Review*, 44 (1), 69–91.

Dunning, J.H. (1977). Trade, location of economic activity and the MNE: a search for an eclectic approach. In: Ohlin, B., Hesselborn, P.O. and Wijkman, P.M., Editors, *The international allocation of economic activity*, Holmes and Meier, New York, 395–418.

Dunning, J.H. (1981). *International production and the multinational enterprise*, Allen and Unwin, London.

Dunning, J.H. (1988). The eclectic paradigm of international production: a restatement and some possible extensions, *Journal of International Business Studies*, 26, 461–492.

Dunning, J.H. (1995). Reappraising the eclectic paradigm in an age of alliance capitalism, *Journal of International Business Studies*, 26, 461–491.

Eicher T. and Kang J.W. (2005). FDI, Exports or Acquisition: Optimal Entry Modes for Multinational Corporations, Theo Eicher; Jong Woo Kang; *Journal of Development Economics*, 77, 1, 207-228.

Elango, B., and Sambharya, R. (2004). The influence of industry structure on the entry mode choice of overseas entrants in manufacturing industries, *Journal of International Management*, 10(1), 107-124.

Erramilli, M.K., Agarwal, S. and Kim, S. (1997). Are firm-specific advantages location-specific too?. *J. Int. Bus. Stud*. 28, 735–757.

Estrin, S. and Bevan, A. (2004). The determinants of foreign direct investment into European transition economies, *Journal of Comparative Economics*, 32 (4), 775-787.

Fligstein N. and Freeland R. (1995). Theoretical and comparative perspectives on corporate organization, *Annual Review Sociology*, 21, 21–44.

Glaister, K.W., and Buckley, P.J. (1999). Performance relationships in UK international alliances, *Management International Review*, 39(2), 123–147.

Gomes, L. & Ramaswamy, K. (1999). An empirical examination of the form of the relationship between multinationality and performance, *Journal of International Business Studies*, 30 (1), 173-187.

Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*. 33, 114-135.

Harrigan, K.R. (1981). Barriers to entry and competitive strategy, *Strategic Management Journal*, 2, 395–412.

Harzing, A.W. (2002). Acquisitions vs. Greenfields: international strategy and management of entry modes, *Strategic Management Journal*, 23, 211–227.

Hawawini G., Subramanian V. and Verdin P. (2003). Is performance driven by industry- or firm-specific factors? A new look at the evidence, *Strategic Management Journal*, 24, 1–16.

Hennart, J.F. and Larimo, J. (1997). The impact of culture on the strategy of multinational enterprises: does national origin affect ownership decision?, *Journal of International Business Studies*. 29, 515–538.

Hennart, J.F. and Reddy, S. (1997). The choice between mergers/acquisitions and joint ventures: the case of Japanese investors in the United States. *Strategic Management Journal*. 18, 1–12.

Horaguchi, H. and Toyne, B. (1990). Setting the record straight: hymer, internationalization theory and transaction cost economics, *Journal of International Business Studies*. 21, 487–494.

Hymer, S.H. (1976). The International Operations of National Firms: A Study of Foreign Direct Investment. , MIT Press, Cambridge, MA.

Kimura, Y. (1989). Firm specific strategic advantages and foreign direct investment behaviour of firms: the case of Japanese semi-conductor firms, *Journal of International Business Studies*, 20, 296-314.

Kokko, A., Tansini R. and Zejan M. (2001). Trade Regimes and Effects of FDI: Evidence from Uruguay, *Weltwirtschaftlishers Archiv*, 137, 124-149.

Kumar R. L. (1996). A note on project risk and option values of investments in information technologies, *Journal of Management Information Systems*, 13(1), 187-193.

Kwon, Y.-C.and Konopa, L.J. (1992). Impact of host country market characteristics on the choice of foreign market entry mode, *International Marketing Review*, 10, 60–76.

Lang, L., Ofek, E. and Stulz, R. M. (1995). Leverage, Investment, and Firm Growth, NBER Working Paper Series, Vol. w5165, 1995. Available at SSRN: http://ssrn.com/abstract=1669104.

Luo, Y., and Peng, M.W. (1999). Learning to compete in a transition economy: Experience, environment and performance, *Journal of International Business Studies*, 30(2), 269–296.

Makino, S., and Delios, A. (1996). Local Knowledge Transfer and Performance: Implications for Alliance Formation in Asia, *Journal of International Business Studies*, 27.

Mahoney, J.T., and Pandian, J.R. (1992). The resource-based view within the conversation of strategic management, *Strategic Management Journal,* 13 (5) 363-380.

Mutinelli, M., and Piscitello, L. (1998). The entry mode choice of MNEs: an evolutionary approach, Research Policy, 27(5), 491-506.

Nitsch, D., Beamish, P.W., and Makino, S. (1996). Entry mode and performance of Japanese FDI in Western Europe, *Management International Review*, 36(1), 27–44.

Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views, *Strategic Management Journal*, 18 (9), 697-713.

Pak, O.S. and Park, Y.R. (2005). Characteristics of Japanese FDI in the East and the West: Understanding the strategic motives of Japanese investment, *Journal of World Business*, 40(3), 254-266.

Pan, Y. and Tse, D. (2000). The hierarchical model of market entry modes. *Journal of International Business Studies*, 31, 535–554.

Paul, D. and Wooster, R. (2008). Strategic investments by US firms in transition economies, Journal of International Business Studies, *Palgrave Macmillan Journals*, 39(2), 249-266.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view, *Strategic Management Journal*. 14, 179-191.

Porter, M.E. (1980). Competitive Advantage, Free Press, New York.

Porter, M.E. (1987). From Competitive Advantage to Corporate Strategy, *Harvard Business Review*, 43-59.

Pothukuchi, V., Damanpour, F., Choi, J., Chen C.C. and Park, SH. (2002). National and organizational culture differences and international joint venture performance, *Journal of International Business Studies*, 33(2), 243–265.

Pradeep K., and Chhibber, K. (1999). Foreign ownership rules and domestic firm globalization in India, Working paper, University of California, Berkeley.

Rasiah, R. (2003). Foreign ownership, technology and electronics exports from Malaysia and Thailand, *Journal of Asian Economic*s, 14(5), 785-811.

Rasouli, GH. M., Turnbull, S. J. and Hoshino, Y. (2008). Foreign ownership, knowledge transfer, firm-specific factors, management and performance of foreign companies in Japan, *International Journal of Services Technology and Management*, accepted paper.

Rasouli, GH. M. and Hoshino, Y. (2007). Establishment, survival, sales growth and entry strategies of Japanese MNCs subsidiaries in India, *Journal of Developmental Entrepreneurship*, 12(4), 433-447.

Reed, R. and R.J. DeFillippi. (1990). Causal Ambiguity, Barrier to Imitation, and Sustainable Competitive Advantage, *Academy of Management Review*, 15, 88-102.

Rihai-Belkaoui, A. (1998). The effects of the degree of internationalization on firm performance, *International Business Review*, 7(3), 315–321.

Roquebert J.A., Phillips R.L. and Westfall P.A. (1996). Market vs. management: What drives profitability?,*Strategic Management Journal*, 17, 653–664.

Scherer, F.M. (1980). *Industrial Market Structure and Economic Performance*, Rand McNally, Chicago.

Schmalensee, R. (1989). Inter-industry studies of structure and performance. In: Schmalensee, R. and Willing, R., Editors, *Handbook of Industrial Organization*, II, Elsevier, New York, 952–1009.

Sharma, K. (2000). Factors determining India's export performance, *Journal of Asian Economics*, 14(3), 435-446.

Sing, H. and Jun K. W. (1995). Some New Evidence on Determinants of Foreign Direct Investment in Developing Countries, The World Bank International Economics Department, International Finance Division.

Siripaisalpipat, P. & Hoshino, Y. (2000). Firm-specific advantages, entry modes, and performance of Japanese FDI in Thailand, Japan and the World Economy, 12(1), 33-48.

Tihanyi, L., Griffith, D. A. and Russell, C. J. (2005). The effect of cultural distance on entry mode choice, international diversification, and MNE performance: A meta-analysis. *Journal of International Business Studies*, 36, 270-283.

Trevino, L., and Grosse, R. (2002). An analysis of firm-specific resources and foreign direct investment in the United States, *International Business Review*, 11(4), 431-452.

Turner, P.P. (1980). Import competition and the profitability of United Kingdom manufacturing industry. *Journal of Industrial Economics.*, 155–165.

Uhlenbruck, K. (2004). Developing acquired foreign subsidiaries: The experience of MNEs in transition economies, *Journal of International Business Studies*, 35(2), 109–123.

Vernon, R. (1966). International investment and international trade in the product cycle, *Quarterly Journal of Economics*, 80, 190-207.

Woodcock, C.P., Beamish, P.W., and Makino, S. (1994). Ownership-based entry mode strategies and international performance, *Journal of International Business Studies*, 25, 253–273.

Zahra, S.A. (1991). Predictors and financial outcomes of corporate entrepreneurship: An explorative study. *Journal of Business Venturing,* 6, 259-285.

Zahra, S.A., and Hayton, J.C. (2008). The effect of international venturing on firm performance: The moderating influence of absorptive capacity, *Journal of Business Venturing,* 23(2), 195-220.

Notes

Note 1. The empirical evidence of short and medium-term impact of foreign investment on exports is mixed. For example, in the case of certain newly industrialized Asian markets such as Chinese Taipei, Singapore, Hong Kong and Malaysia, the consensus seems to be that MNCs have played an important role in exports growth (e.g. Kumar, 1996). Moreover, studies of the determinants of FDI location in developing countries indicate that main driving factor is the ease with which enterprises located in the host market can participate in international trade (Sing and Jun, 1995, and Kokko et al., 2001). However, broader-based empirical studies generally yield mixed results regarding the role of MNCs in expanding the exports of developing countries (Dunning, 1993 and Sharma, 2000).

Note 2. The direct impact of foreign investment on import falls into two parts, namely an immediate effect emanating from the actual investment and the effects on the import pattern of the targeted enterprises. The former channel is generally limited to the imports of initial inputs of imported machinery and equipment, or of where FDI is large compared with the size of host market; it may include the knock-on effect on aggregate imports from rising total domestic demand. The second channel, which essentially depends on the investor's choice between imported and local inputs, has been studied extensively.

Table 1. Data distribution based on year of entry

Period	Equity Ownership			Country of Origin			
	No.	WOS	IJV	North America	Europe	Asia	Others
1903 - 1970	476	207	269	217	205	35	19
	14%	43%	57%	46%	43%	7%	4%
1971 - 1980	471	263	208	207	201	43	20
	13%	56%	44%	44%	43%	9%	4%
1981 - 1990	887	527	360	403	371	86	27
	25%	59%	41%	45%	42%	10%	3%
1991 - 2000	1002	673	329	460	393	113	36
	29%	67%	33%	46%	39%	11%	4%
2001 - 2006	664	402	262	293	242	95	34
	19%	61%	39%	44%	36%	14%	5%
Total	**3500**	**2072**	**1428**	**1580**	**1412**	**372**	**136**
	100%	59%	41%	45%	40%	11%	4%

Table 2. Data distribution based on type of industry

Type of Industry	Number	Percentage
Agriculture	2	0.1%
Automobile	137	3.9%
Bank	128	3.7%
Chemistry	259	7.4%
Construction	17	0.5%
Consulting	155	4.4%
Electronic & electrical equipment	331	9.5%
Finance, insurance & real state	179	5.1%
Food products	128	3.7%
Information service	171	4.9%
Machinery	355	10.1%
Medical equipment & supply	151	4.3%
Other manufacturing	340	9.7%
Petroleum	23	0.7%
Primary & fabricated metals	104	3.0%
Publication	29	0.8%
Retail industry	99	2.8%
Services	252	7.2%
Software	264	7.5%
Steel	6	0.2%
Transportation	150	4.3%
Wholesale trade	220	6.3%
Total	**3500**	**100.0%**

Table 3. Data variables and definition

Sign	Variable name	Variable definition
EXPRNC	Experience in host market	The number of firm-years of experience in the host country
WOS_IJV	Type of ownership	Wholly owned subsidiary (1) and International joint venture (0)
IMPORT	Import ratio	The ratio of import in a foreign company
EXPORT	Export ratio	The ratio of export in a foreign company
F_EMPLY	Foreign employee	The number of foreign employees working in a subsidiary
N_GRAD	New graduate	The number of new graduates in a subsidiary
EMPLYE	Employee	The number of employee in a subsidiary
P_EMPLY	Parent's employees	The number of employee in parent company
F_MNGR	Foreign manager	Manager nationality of subsidiary (Japanese 1 and otherwise 0)
P_SALS	Parent's sales	Gross sales of parent company
P_ASSET	Parent's asset	Total assets of parent company
CAPTL	Capital	The amount of capital of subsidiary

Table 4. Descriptive Statistics

Variables	N	Min.	Max.	Mean	Std. Deviation
Experiences in host market	293	1.6	97.9	30.027	17.182
Type of Industry	293	0	1	0.642	0.480
Capital	293	10	385000	7958.809	31026.799
Type of Ownership	293	0	1	0.471	0.500
Europe	293	0	1	0.403	0.491
Asia	293	0	1	0.089	0.285
Others	293	0	1	0.058	0.234
Import ratio	293	0	100	43.157	40.307
Export ratio	293	0	100	5.621	14.634
Employees	293	0	14413	580.259	1318.200
New graduate	293	0	380	10.014	34.852
Foreign Manager	293	0	1	0.768	0.423
Asset Growth Ratio	293	-0.64	0.87	0.123	0.181
Parent's Sales	293	22	370998	33702.321	75563.101
Parent's Sales Growth	293	-0.91	32.34	0.233	1.903
Parent's Employees	293	50	506000	63204.519	97729.944
Foreign Employees	293	0	102	2.645	8.242

Table 5. Pearson Correlations

		1	2	3	4	5	6	7	8	9
1	Type of industry	1.00								
2	Experience	0.23	1.00							
3	Capital	-0.23	-0.05	1.00						
4	Type of ownership	-0.01	-0.03	-0.02	1.00					
5	Europe	0.03	0.10	0.09	0.12	1.00				
6	Asia	-0.02	0.00	-0.02	0.07	0.14	1.00			
7	Others	0.00	0.00	0.00	0.06	0.27	0.74	1.00		
8	Import ratio	0.29	-0.04	-0.15	0.33	-0.04	0.00	-0.01	1.00	
9	Export ratio	0.24	0.10	-0.06	0.01	-0.09	0.00	-0.01	-0.18	1.00
10	Employees	-0.08	0.25	0.18	-0.12	-0.05	-0.06	-0.03	-0.22	-0.01
11	Foreign Employees	-0.09	-0.02	0.06	-0.10	0.06	0.02	0.00	-0.11	0.03
12	New graduate	-0.16	0.10	0.18	-0.17	-0.04	0.06	0.10	-0.24	-0.06
13	Foreign Manager	0.09	0.15	-0.12	-0.11	-0.08	0.00	0.07	-0.19	0.12
14	Parent's Employees	-0.24	0.10	0.12	0.07	-0.07	-0.12	-0.08	-0.13	-0.11
15	Asset growth ratio	0.03	-0.03	-0.03	0.01	-0.21	0.01	0.02	-0.05	-0.07
16	Sales growth ratio	-0.01	-0.05	0.00	0.00	-0.21	-0.02	0.01	-0.01	-0.07
17	Parent's Sales	-0.05	0.08	0.06	0.09	0.19	-0.01	0.01	-0.21	-0.12
18	Parent's sales growth	0.05	-0.01	-0.01	-0.06	-0.07	-0.02	-0.02	0.06	0.10
	N	293	293	293	293	293	293	293	293	293

Table 5. Pearson Correlations (continue)

		10	11	12	13	14	15	16	17	18
1	Type of industry									
2	Experience									
3	Capital									
4	Type of ownership									
5	Europe									
6	Asia									
7	Others									
8	Import ratio									
9	Export ratio									
10	Employees	1.00								
11	Foreign Employees	0.34	1.00							
12	New graduate	0.58	0.15	1.00						
13	Foreign Manager	0.10	-0.12	0.11	1.00					
14	Parent's Employees	0.25	0.07	0.17	0.07	1.00				
15	Asset growth ratio	0.08	-0.13	0.16	0.09	0.05	1.00			
16	Sales growth ratio	0.08	0.02	0.19	0.04	0.05	0.91	1.00		
17	Parent's Sales	0.01	-0.01	-0.03	0.02	0.36	0.04	0.01	1.00	
18	Parent's sales growth	0.04	0.10	0.01	0.06	0.13	0.14	0.14	0.09	1.00
	N	293	293	293	293	293	293	293	293	293

Table 6. Collinearity Statistics

Variables	Tolerance	VIF
Type of industry	0.709	1.41
Experience in host market	0.801	1.25
Foreign ownership ratio	0.860	1.16
Europe	0.812	1.23
Asia	0.430	2.33
Others	0.409	2.44
Import ratio	0.784	1.28
Export ratio	0.902	1.11
New graduate	0.615	1.62
Sales growth ratio	0.929	1.08
Foreign employees	0.837	1.19
Parent's sales growth ratio	0.944	1.06
Parent's Employees	0.714	1.40
Parent's Sales	0.759	1.32
Capital	0.581	1.72
Employees	0.309	3.23
Gross sales	0.307	3.25

Table 7. Binary logistic regression for type of industry

Variables	Type of Industry	
EXPRNC	0.054**	(3.957)
WOS_IJV	-1.335**	(3.302)
IMPORT	0.029***	(9.053)
EXPORT	0.025	(1.147)
F_EMPLY	0.100**	(3.748)
N_GRAD	-0.24***	(6.512)
EMPLYE	0.382	(1.236)
P_EMPLY	-0.253	(1.528)
F_MNGR	1.555*	(2.523)
P_SALS	0.946**	(3.876)
P_ASSET	-1.068***	(4.769)
CAPTL	0.099	(0.169)
Constant	0.273	(0.028)
Cases	**293**	
Chi-square	48.544***	
-2 Log likelihood	74.579	
Cox & Snell R²	0.318	
Nagelkerke R²	0.512	

* Significant to 0.1. ** Significant to 0.05. *** Significant to 0.01.

Notes: 1. Numbers in right sides are Wald Statistics.

2. The dependent variable is the type of industry which is a dummy variable coded 1 if the firm is in manufacturing industry and coded 0 if it is in services industry. F_MNGR, foreign manager; F_EMPLY, foreign employees; N_GRAD, new graduate; P_ASSET, parent's total assets; P_SALS, parent's total sales; P_EMPLY, the number of parent firm's employees; EXPRNC, parent's experience in host country; EMPLYE, the number of firm's employee; SALES, firm total sales; CAPTL, firm's capital; IMPORT, the ratio of import; EXPORT, the ratio of export; WOS_IJV, type of ownership (wholly owned subsidiary and international joint venture).

Table 8. The multiple linear regression result of asset growth ratio

Independent Variables	Model 1		Model 2		Model 3	
(Constant)		1.236**		3.074**		-0.833
Type of industry	0.067	1.032	0.071	1.075	0.050	0.493
Experience in host market	-0.019	-0.290	-0.036	-0.544	0.188**	1.871
Foreign ownership ratio	-0.074	-1.218	-0.067	-1.095	0.172**	1.707
Europe			-0.209***	-3.363	-0.257***	-2.593
Asia			-0.015	-0.169	-0.099	-0.685
Others			0.080	0.904	0.205*	1.460
US and Canada	0.192***	3.243				
Import ratio	0.054	0.838	0.023	0.339	-0.132	-1.252
Export ratio	-0.067	-1.166	-0.077	-1.309	-0.293***	-2.970
New graduate	0.179***	2.703	0.169***	2.495	0.182***	2.711
Sales growth ratio	0.121**	2.101	0.131**	2.227	0.124**	2.135
Foreign employees	-0.159***	-2.686	-0.144**	-2.410	-0.160***	-2.696
Parent's sales growth ratio	0.138**	2.434			0.246***	2.519
Control Variables						
Parent's employees	-0.062	-0.672			-0.220**	-1.776
Parent's sales	0.175	1.838			-0.116	-1.006
Capital	-0.020	-0.291	0.001	0.019	0.063	0.358
Employees	-0.039	-0.460	0.037	0.448	-0.372	-1.102
Gross sales	-0.036	-0.448	-0.028	-0.337	0.375	1.069
R^2	0.145		0.118		0.282	
Adjusted R^2	0.101		0.073		0.170	
df	14		14		17	
F statistics	3.313***		2.612***		2.223***	
No. of cases	293		293		293	

* Significant to 0.1. ** Significant to 0.05. *** Significant to 0.01.

Note: 1. the dependent variable is asset growth ratio for all three models.

2. The numbers in parentheses are the t values.

Figure 1. The ownership of foreign companies in Japan based on period of entry

Call for Manuscripts

International Business Research is a peer-reviewed journal, published by Canadian Center of Science and Education. The journal publishes research papers in the fields of business, management, marketing and economics. The journal is published in both printed and online versions, and the online version is free to access and download.

We are seeking submissions for forthcoming issues. The paper should be written in professional English. The length of 3000-8000 words is preferred. All manuscripts should be prepared in MS-Word format, and submitted online, or sent to: ibr@ccsenet.org

Paper Selection and Publication Process

a). Upon receipt of paper submission, the Editor sends an E-mail of confirmation to the corresponding author within 1-3 working days. If you fail to receive this confirmation, your submission/e-mail may be missed. Please contact the Editor in time for that.

b). Peer review. We use single-blind system for peer-review; the reviewers' identities remain anonymous to authors. The paper will be peer-reviewed by three experts; one is an editorial staff and the other two are external reviewers. The review process may take 2-3 weeks.

c). Notification of the result of review by E-mail.

d). The authors revise paper and pay publication fee.

e). After publication, the corresponding author will receive two copies of printed journals, free of charge.

f). E-journal in PDF is available on the journal's webpage, free of charge for download.

Requirements and Copyrights

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other languages, without the written consent of the Publisher. The Editors reserve the right to edit or otherwise alter all contributions, but authors will receive proofs for approval before publication.

Copyrights for articles published in CCSE journals are retained by the authors, with first publication rights granted to the journal. The journal/publisher is not responsible for subsequent uses of the work. It is the author's responsibility to bring an infringement action if so desired by the author.

More Information

E-mail: ibr@ccsenet.org

Website: www.ccsenet.org/ibr

Paper Submission Guide: www.ccsenet.org/submission

Recruitment for Reviewers: www.ccsenet.org/reviewer.html

International Business Research