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The Dynamics of Strategic Capability

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Abstract

The strategic capability concept and its integration into the strategic planning process in international business have not been sufficiently explored as its conflicting definitions indicate. Moreover international managers may not be aware of the need for strategic capability because, the strategic capability paradigm for international business has not been sufficiently conceptualized and explored. Therefore this paper reviews how the business environment influences strategic capability, explains the elements of strategic capability, how strategic capability is integrated into the strategic planning, and gives some suggestions for future research on the strategic capability paradigm as it pertains to international businesses.

Keywords: Strategic Capability, Business Environment, Strategy

1. Introduction

Every business in order to survive and thrive in a competitive business environment needs to possess a certain level of strategic capability. The type of strategic capability that the company needs at a specific time is determined by the legitimizing forces and the threats/opportunities in the future business environment (Ansoff, 1984: 177).

Legitimizing forces are the factors that establish the purpose of the international business and the criteria for its success. These forces evolve from the external environment of the international business and involve: The determination of the key attributes measuring successes in the international business (Vogel, 1991); the determination of the aggressiveness of behavior pertaining to each key attribute (Grahame, 1991); the determination of the rules of the game for the international business organization (Farrell, 1991; Grahame, 1991); the determination of the driving forces; the power structure of the international business organization (Ansoff, 1979:130, 1984:139&146).

Threats and opportunities also evolve in the external environment of the international business and they impact the international business organization in both positive and negative ways. The sources of threats and opportunities for the international businesses vary tremendously. The threats and opportunities can originate from customers, suppliers, competitors, government, and many other sources. Even a change in the weather can be a tremendous source of threats and opportunities as international business farmers and managers of smaller oil distributors know very well. For example, a warmer than usual winter in the northern parts of U.S. and Europe will substantially influence the demand for crude oil, causing swings in the volume of business for the many international oil companies and variation in oil prices.

The frequent changes in the threats and opportunities create environmental uncertainties that international business managers may have difficulty adjusting because they lack the capability to successfully identify new opportunities, detect and interpret problem areas and issues, and implement strategic responses. In a given business environment an appropriate and competent strategic capability is a key basis for such an effective strategic response (Ansoff, 1979:95; Hambrick, 1982). This view was reinforced by Lawrence and Lorsch who reviewed the relevant literature and presented a now classic study synthesising the relationships among these variables emphasizing that the sequence being the business environment as the independent variable determining the conditions of the dependent variables strategic capability and strategy into a contingency theory of organisations emphasising the '…goodness of fit with the various environmental variables and the predispositions of members.' (Lawrence and Lorsch, 1967:209) The success of the organisation is determined by this fit.

Although the contingency theory's concept of a fit among the business environment, strategic capability, and strategy have been well accepted in the strategic management literature (Ansoff, 1979: 95; 1984:14; Burns & Stalker, 1961; Thomson, 1967; Lawrence and Lorsch, 1967:185; Lorsch and Lawrence, 1972:38; Collins, 2001:41), this perspective has been criticized and debated since the early days of strategic management discipline. For an example, Chandler

(1962:15) put forward the evidence that a change in strategy was initiated by changing marketing environment of a business and that the new strategy must be followed by appropriate change in the internal configuration of the organisation that is its strategic capability and this perspective of the sequence has been supported by other leading strategic management scholars (Rumelt, 1974; Miles & Snow, 1978:3; Miles & Snow, 1986; Drucker, 1974:445).

Although, there are some conceptual differences and debate among strategic management theorists on the sequence of the fit among the environment, strategy, and strategic capability (Chandler, 1962:15; Rumelt, 1974; Miles & Snow, 1978:3; Miles & Snow, 1986; Drucker, 1974:445) visa versa the opinion that the fit should be among the business environment, the strategic capability, and strategy (Ansoff, 1984:14; Burns & Stalker, 1961; Thomson, 1967; Lawrence and Lorsch, 1967:185; Lorsch and Lawrence, 1972:38; Collins, 2001:41) and some authors have called for stretching strategy beyond existing strategic capability in anticipation- or creation of future environmental development (Hamel & Prahalad, 1994:146; Kim & Mauborgne, 2005:7). The basic conceptualisation of a relationship among the three variables was accepted as early as 1940's (Drucker, 1946: 37; Penrose, 1957:14-19). The fundamental premise in this argument is that the firm should respond to legitimizing forces, opportunities, and threats in the international business environment to build the appropriate strategic capability that in turn creates the strategies necessary for the firm to survive and prosper as implied by the contingency theory (Lawrence and Lorsh, 1967). Albeit the heated debate on their sequence as indicated Minzberg's (1990) paradoxical criticism of the strategic management prescriptive schools' of thought grounding on the contingency theory's perspective which shows the extent of the dilemma in the strategic management literature on the subject as so eloquently pointed out by Ansoff (1991). Figure 1 illustrates the relationships discussed above.

Many issues surface on close examination of this perspective of strategic capability and its relationships with strategy and the international business environments. First the perspective is reactive in nature meaning that the capabilities and strategy are reactive to existing or anticipated future environments. Second, the perspective ignores the role of visionary strategic individuals such as Henry Ford, Bill Gates, and Henry Lee and their roles in strategy formulation. Third the perspective ignores their roles in business environment creation. Fourth the perspective ignores the role of luck in business (Porter, 1990). Therefore a consideration for environmental creation needs to be considered which is done next.

2. Creating a Business Environment

The preceding discussion is focused on the hypotheses that the firm is an environment serving organization meaning that there are needs that rise in the business environment and that the firms respond to these needs by producing products or services that are needed by the customers. Much of the managerial writing has been addressing this view of the world and management ideas such as "customer is the king" and "the customer is always right" (e.g. Peters and Waterman 1982) are all based on this philosophy. However, compelling evidence can be observed in the market place for a different logic where firms create the business environment instead of serving it. Many of the most successful companies of the late 20th century based their business concept on creating a new business environment and needs. Examples of products and companies following this philosophy of business environment creation abound. Who would have claimed in the early 1980s that we "needed" the internet, mobile phones with cameras, satellite navigation system to find our way home, mutual fund based pension plans, and corn chips and salsa? Still some of the most successful companies of the era such as Yahoo, Fidelity, and Pepsi created these needs. This perspective effectively changes the sequence of the relationships among the strategy, strategic capability, and the international business environment to an amalgamation of the classic Chandlerian (1962) perspective of strategy coming before structure. The relationships are illustrated in figure 2.

The two approaches in conceptualizing the relationships among strategy, strategic capability, and the business environment and their sequence appear contradictory and call for explanation of the controversy, which leads to the concept of strategy and strategic capability equilibrium and business environmental shifts discussed next.

3. Strategy-Strategic Capability Equilibrium and Business Environmental Shifts

Where there is equilibrium between the strategy and strategic capability the performance of the organization is optimized for a particular business environment (Ansoff, 1984). The question is if there is a natural progression from the new business environment to Ansoff's conceptualization of the business environment containing legitimizing forces and threats/opportunities? The answer is most plausibly no. The transformation should be viewed a shift to another business environmental equilibrium rather than a progression because of the drastic difference between the two business environments. The new business environment may demand a completely different scientific and technological foundation, completely different manufacturing system, and often different distribution and marketing system. Thus a shift in business environment requires a new equilibrium between strategy and strategic capability. The relationship is illustrated in figure 3.

In support of the concept of business environmental shifts on the observer the changes in data storage devises such as

3.5" diskettes, CDs, and MP3s. The business environment in these memory storage devises did not progress from one of these to another. The devises represent a complete shift in the storage devises' business environment to a new equilibrium. To contrast, a progressive increase in the memory storage capacity of the 3.5" diskettes, CDs and MP3s would represent a movement along the curve on figure 3. Thus be a natural progression. In order to shed light on the dilemma of which comes first the business environment, strategy, or strategic capability, the concept of strategic capability needs further exploration.

3.1 Strategic Capability

Ansoff (1979:72) made some of the earlier contributions to the concept of strategic capability where he analyzed it in terms of general management capability and competence, logistical competence, strategic capacity and discussed their dynamics. While Ansoff's work broke new ground on the subject, certain questions still remain unanswered. For example, the distinction between individual competence and organizational competence is blurred, the transformation process from individual competence to organizational competence is not explained, and further development of the concepts was needed.

Other management scholars (Prahalad and Hamel, 1990; Hamel and Prahalad, 1994) picked up the ball and warned of the dangers of ignoring the importance of core competencies and emphasized the need to managing them like portfolios of products and assets. They defined core competencies as "the collective learning in the organization" (1990:82) and they don't differentiate between core competencies and core capabilities (1994:203). Moreover their conceptualization and examples are limited to technologies and products (Hamel and Prahalad, 1993). In the wake of their work a number of writers on the subject have attempted to make a distinction between the two. For example, Stalk, Evan, and Shulman (1992) consider core capability applicable to the whole value chain but core competence limited to functional areas within the firm.

Prahalad and Hamel (1990:83&84) claim core competencies can be identified in terms of access to market, customer benefits, difficulty in imitation, and think that a list of 20 to 30 capabilities is too extensive and core competencies should be limited to five or six. However in 1994:203, they revised their previous positions and extended the list of capabilities to 40 or 50 and the core competencies to fifteen. Moreover they provide useful distinctions among meta-competencies, core competencies, and constituent skills and realize that in order to make the concept of capability operational the company needs to inventory the capabilities in the firm to the level of each individual's personal skills. This recognition should be applauded. Anything else is an anomaly in times when a pair of shoelaces is inventoried in a hypermarket. Why should not a firm keep a detailed inventory of its most valuable assets? In addition to the problem of agreement on how core capabilities are defined, the identification of their elements beyond broad abstraction is lacking in the literature. This is in spite of the devotion of whole issues of management journals to the subject.

Consequently, building on the above contributions on strategic capability a different perspective is taken on its definition: as the ability to change the organization and create business environments. A capability is strategic if it results in change or has the potential to. Certainly we are seeking a positive change for the organization. From this perspective strategic capability can be analyzed in terms of strategic- resources, competence, capacity, quality, and the mobility of these factors. Furthermore an attempt is made to identify tangible components of strategic capability in relation to these factors.

3.1.1 Strategic Resources

Strategic resources can be changed from one form to another fast. Cash and cash equivalents and the ability to raise capital through equity or debt are the most important strategic resource for an international business.

Traditionally defined resources such as machines, factories, human resources, and intellectual capital (Johnson, Scholes, and Whittington, 2005:118) are unlikely to be able to change fast and can be acquired on the market if the money is available. Therefore they should not be considered strategic resources leading to competitive advantage. Obsolete machines and factories are liabilities not strategic assets, retraining employees takes long and is expensive, and filing cabinets full of patents that have never materialized are just scrap paper not strategic resources.

In the current international business environment virtually every part of the production value chain can be purchased, built, or subcontracted.

Jobs can be outsourced and intellectual property such as relevant patents or designs can be purchased or the companies owning them can be acquired like the recent acquisition spree by Chinese companies has indicated. In search of resources, distribution networks, and talent Chinese companies have been scooping up giants such as the IBM PC division by Lenovo, France's Thomson TV manufacturer by TCL Corporation, and Korea's Ssangyong trucks by Shoanghai Automotive Industry Corporation (Roberts et. al. 2004).

In the current international business environment companies like Lenovo can purchase the IBM's PC division to give Lenovo access to the marketing, logistics, and knowledge resources Lenovo needs. China Minmetal bid for Canada's

Noranda is an attempt to purchase resources for cash. Even oil reserves are no longer strategic resources as they can be purchased on the market as the CNOOC Ltd's $18.5 billion bid for UNOCAL indicates. The question is if products/services can be considered strategic resources? The answer lies in the products ability to change and mutate into other products. Arm & Hammer baking soda has mutated from being a food additive into refrigerator cleaner, carpet cleaner, air freshener, laundry additive, and toothpaste. A case for and against the argument can be made. The question is if the product's success can be attributed to its ability to change or in strategic competence.

Consider the competitive strategy of various viruses like AIDS and the Swine Flue virus H1N1, the problem in fighting such viruses is that they are constantly changing so every time scientist come up with an antidote, the virus has already changed and mutated to another form rendering the antidote useless. Would it be fantastic to be able to develop a product that constantly mutates into new products nullifying all efforts by competitors to produce compatible products? Some of the top fashion designers stay on top by doing exactly that, by the time competitors produce copies and imitations of the top fashion labels, the fashion designers are already out with the next design rendering the competitor's products "old fashion". Kester (1984) provided some empirical evidence for the value of growth strategies which can lead to multiple "mutations" into new products or even product lines and concluded that the key value driver in the stock price of companies was the ability of managers to invest their cash into opportunities which have the ability to hatch- or mutate into new growth business. Again, the question is if the product's success can be attributed to its ability to change or in the strategic competence of the designers and if so then can't designers and product lines be bought? Therefore, this discussion shows that the only resource remaining strategic is cash and the ability to raise it. And this perspective has been supported by those criticizing the resource based view of the firms such as Eisenhardt and Martin (2000).

3.1.2 Strategic Competence

The strategic competence of an international business can be analyzed in terms of two categories. The first category is individual competence such as the skills, knowledge, experiences, and aspirations of the strategic managers, key management, scientific, and technical personnel as well as other internal stakeholders. The second category is the organizational competence such as formal management systems, structure, scientific and technical competence, organizational culture, organization's logistical competence in respect to the various functions such as marketing and finance, and technologies (Ansoff, 1979:76; 1984:184; Lynch, 2003).

Individual Competence. The first category is individual competence such as the skills, knowledge, experiences, and aspirations of the strategic managers, key management, scientific, and technical personnel as well as other internal stakeholders. (Ansoff, 1979:76; 1984:184; Lynch, 2003).

Strategic managers are the people who influence the strategic behavior leading to success or failure of the international business. The influences they have on the international business are affected by: The strategic manager's courage, talent, skills, strategic culture, ambitions, risk propensity, tenacity, perseverance, and cheerfulness under adverse conditions and stress; the power the strategic managers have; the constraints on the freedom of behavior they and the international business experiences; the recognition and rewards given to the role of the strategic manager in the international business; the match between the strategic manager's personality and the role the manager is assigned in the international business (Ansoff, 1979:210; Nutt, 1989; van de Mer and Jacques, 1989).

The role of the strategic manager is to insure the success and survival of the international business, and this role becomes more demanding when the international business is in a turbulent business environment where the business strategies of the past are obsolete and the strategic manager's entrepreneurial spirit becomes critical. This importance of strategic managers is evident in U.S. industries having experienced an increase in the turbulence level in their business environments.

The revolutionary changes in the hospital industry in the San Francisco Bay area have put many of the smaller hospitals out of business. However, some strategic managers had tremendous impact on the strategic evolution of many of the smaller hospitals, and they were able to save them from following the bandwagon to bankruptcy. The success of these smaller hospitals was contributed to the effective responses of their strategic managers (Meyer, Brooks, and Goes, 1990).

In the banking industry, strategic managers at smaller commercial banks were the key sources of effective responses to the changes caused by the deregulation of the banking industry in the 1980s (Ballarin, 1986). In the telecommunication industry, strategic managers of smaller telecommunication businesses played a very important role in developing effective responses to tremendous changes in their business environments due to deregulation of the industry (Astley and Fombrum, 1983).

Internal Stakeholder Aspirations. The aspirations of the internal stakeholders in the international business influence its effectiveness. They are individuals, groups, and organizations who have an interest in the actions of an international business organization, and who are able to influence it (Savate, et.al. 1991) such as employees, international business

managers, stockholders, and bondholders (Cornell, and Shapiro, 1987). The internal stakeholders influence the international business by their aspirations acting on the power structure of the international business (Ansoff, 1979:164; Savage, 1991)

The internal stakeholder aspirations can be analyzed in term of their attributes of performance, aggressiveness of behavior, and level of aspirations. The attributes of performance are the elements by which performance is measured by in the organization. In for profit business organization these attributes can be after tax profit, earning per share, market share, or growth. The aggressiveness of the stakeholders' behaviors is the attitude towards the attributes. The attitudes can be satisfying, or goal seeking, or maximizing. The level of aspirations is the thresholds or goals triggering operational or strategic action by the international business (Ansoff, 1979:107). The stakeholders' aspirations influence the international business in many ways. The capital structure, power structure, and the culture of the international business are strongly influenced by the aspirations of the stakeholders (Cornell and Shapiro, 1987; Barton, Hill, and Sundaram, (1989).

Individual scientific, logistical, and technical competence may be strategic in nature when specific highly talented and skilled personnel are employed by the organization. The challenge for the organization is to institutionalize the individual competences and turn them into organizational competence by systematically documenting and communicating the knowledge of the key scientific, logistical, and technical personnel to the rest of the organization.

Organizational Competence. Organizational competence is the collective accumulation of skills, knowledge, and experience of the organization's past and present employees. For example, many talented individuals and group of individuals have contributed their talent, skills, and experiences in creating the policy and procedure manuals for the McDonalds corporation and these manuals become the organizational competence of the corporation and will remain so even if the individuals leave it. The organizational competence can be analyzed in terms of the organization's esprit de corps, organizational culture, formal management systems, structure, scientific and technical competence, the organization's logistical competence in respect to the various functions such as marketing and finance, and technologies (Ansoff, 1979:76; 1984:184; Lynch, 2003).

Esprit de Corps is the state of the spirits of a person or group as exhibited by courage, confidence, cheerfulness, discipline, selflessness, dedication to a common goal, and willingness to perform assigned tasks. These elements of espirit de corp can all be assessed objectively.

Culture is a complex set of beliefs, assumptions, values, language, and symbols that define the way in which individuals in international business conduct their interactions with members of their firm and outside parties (Peters and Waterman, 1982; Fiol, 1991). The culture of the international business influences its performance, structure, and its stakeholders' aspirations.

The culture consists of many elements. The attitude towards change; whether it is friendly or hostile towards change. The propensity towards risk and risk taking, whether the organization avoids, tolerates or seeks risks. The time perspective towards problems; whether it is past, present, or future oriented. The action perspective; whether it has an internal operations or external environment orientation. The goals of the management and employees of the international business; whether they are focused on stability, efficiency, effectiveness, growth or innovation. The shared model of the world, which is the perception of the critical success factors shared by the international business Furthermore the culture is a change trigger; which means the activator of managerial response to events effecting the international business; whether it is crisis or unsatisfactory performance (Ansoff, 1984:211). The culture affects the performance of the international business. For instance, culture can lead to sustained competitive advantage (Porter, 1980), a strong employee and customer centered cultures lead to superior financial performance (Peters and Waterman, 1982), a culture that enables the firm to behave in ways that lead to high sales, low costs, high margins, is rare, and imperfectly imitable by competitor does contribute to sustained superior financial performance (Barney, l986b), and a culture based on commitment to and high involvement in the international business is critical for survival in the increasingly competitive business environment (Walton, 1992).

Hamel and Prahalad (1993:76) portrayed managerial culture as "the assumptions, premises, and accepted wisdom that bound or 'frame' a company's understanding of itself and its industry…" and consider these frames as the determinants of the firm's success or failure.

Consequently a successfully implemented change in philosophy and personnel policies towards such a culture gets the desired results in financial performance (James, 1991).

A change in culture is important when the structure of the organization is changed and new approaches to doing things are adopted. As demonstrated by Lee Iacocca who created an international business unit separate from the structure of the Chrysler organization to develop the new LH cars. He credited the successful launching of the new Chrysler LH cars to an international business like culture of the small team. The international businesses culture facilitated the change in the structure of the Chrysler organization and made the development of the new car possible in a record time

(Smith, 1992).

Meanwhile many organizations experience a gap between the manager's perception of the culture of the international business and its desired culture as determined by the business environment. Where such cultural gap exists it has a substantial impact on the international business profitability (Smead, 1991). A nation's culture severely affects the competitive advantage of nations through the cultural attitude towards technology adaptation. The effectiveness of technology transfer to international business is moderated by variations in culture and culture-based receptivity (Kedia and Bhagat, 1988).

Formal management systems are explicit formalized routines and procedures that guide and control the work of international businesses (Ansoff, 1984:256). The formal management systems are elements of most international business organizations and their affects on the performance of the organizations are positive. High performance has been related to effective formal information based routines and procedures for strategic decision making, budgeting systems, cost control systems, strategic and competitive scanning system (Mahmood and Soon, 1991), resource allocation systems, human resource management systems, project management systems (Robinson 1982), and performance evaluation and rewards systems (Simons, 1991).

The building blocks of formal management systems are: information input, control, budgeting, programming, planning and implementation (Ansoff, 1984:266; Porter, 1990). However the relationship between the formal management system and performance is a controversial one and researchers attempt to explain why some management systems improve performance in a particular international business and not in others. Two critical parts of the formal management system receiving much attention are the information technology systems, and the strategic and competitive scanning systems employed by the international business. The information technology system employed by the international business has a positive effect on the strategic effectiveness of an international business, and information technology is being used by U.S. organizations as strategic business tools and competitive assets (Mahmood and Soon, 1991). For an example, the SABRE reservation system at American Airlines was considered by its strategic managers to be a key strategic competence helping the airline to gain significant advantage in market share over its competitors in the early 1980s. The success of the system was contributed to the ease small travel agencies could adapt the system into their operation (Cash and Konsynski, 1985).

The strategic and competitive scanning system employed by an international business has positive effects on its strategic effectiveness, and strategic and competitive scanning systems can create sustainable competitive advantage (Kiernan, 1993; Zajac and Bazerman, 1991; Ghosal and Kim, 1986).

Formal structure is the pattern of relationships in tasks, authority, roles, and responsibility by which the international business does its work (Pfeffer, 1991). The formal structure in international businesses developed in the late 19th century and the early 20th century as a response to the demands of the industrial revolution. The first formal structure was the functional structure where task, authority, roles, and responsibility were patterned along functional lines. Since, international businesses have attempted to meet new demands on their responsiveness by developing new formal structures. Consequently, researchers have investigated the relationship between the environment and organizational structure, strategy, and performance.

Integrating Strategic Capability into the Strategic Planning Process

The strategic planning process must involve a phase where the need for strategic capability applicable for the future business environment is evaluated with the objective of matching the strategic capability to the future business environment the firm intents to create. Moreover the argument for the fit between the strategic capability and international business strategies is based on the observation that the implementation of strategies is contingent upon the responsiveness of the strategic capability (Chandler, 1962; Galbraith, 1977; Eglehoff, 1988).

The strategic capability analysis includes six analytical steps. The first step is to access the strategic budget of resources. The second step is to perform strategic competence analysis. The third step is to access the applicability of the strategic competence components to the needs of the firm. The forth step is to quantify the number of the strategic competence components listed above and access they are sufficient to the firm's need. The fifth step is to access the mobility of the strategic competence components. The sixth step is environmental analysis focusing on what new business environments can be created.

Albeit the importance of the strategic capability, empirical evidence solving the dilemma of the relationship and sequencing among strategy, strategic capability, and the business environment is scant with the rare exception of Collins (2001), who investigated the sequencing of strategy and strategic capability. His research found evidence for both approaches in successful firms but, Collins favored strategic capability before strategy in larger firms. However his research did not ascertain the role of the international business environment and if it was the fundamental basis for strategy and strategic capability formulation or if the two came first creating the business environment.

4. Conclusions and Further Research

Although there is a general consensus in the strategic management theory that the international business environment, strategy, and strategic capability are all crucial element in the strategic management of firms, there is no consensus on the sequencing of strategy and strategic capability on one side and the place of the international business environment in relation to the other two. Moreover the elements of strategic capability are poorly understood. Furthermore the empirical evidence for this theoretical work is limited. Although some empirical evidence have been provided for the elements and variables in strategic capability (e.g. Lenz 1980; Ulrich and Wiesema, 1987; Dutta, Bergen, Levy, Ritson, and Zbaracki 2002; and Oliver & Holzinger, 2008) the focus has mainly been on conceptual development and have provided scant or inconclusive empirical evidence for the sequence and relationships among strategy, strategic capability, and environment as well as the key variables therein. Consequently further research is needed on the strategy, strategic capability, and business environment concepts as they need to be developed into a paradigm by investigating the variables and elements that may belong in the strategy, strategic capability, and international business environment formulas presented above, their sequence, and how these can be integrated into the strategic planning process in international businesses need investigation as well. This research may include variables suggested by Walton (1992) which were: informal management systems, organizational knowledge, customer goodwill, front line employees, age, obsolescence, logistical competence, location and strategic deployment, luck and the ability to exploit it, attitude towards competitors, and strategic reserves or cash. The research of these elements and their integration into the strategic planning process would enhance the knowledge of international business organizations and give managers the necessary strategic tools they need to implement effective strategies in changing international business environments. Much of this research should be focused on how organizations build the strategic capability to create new business environments.

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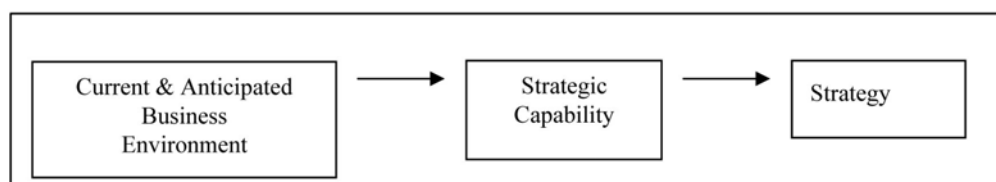
Figure 1. Ansoff's Perspective: Environment, Strategic Capability, and Strategy
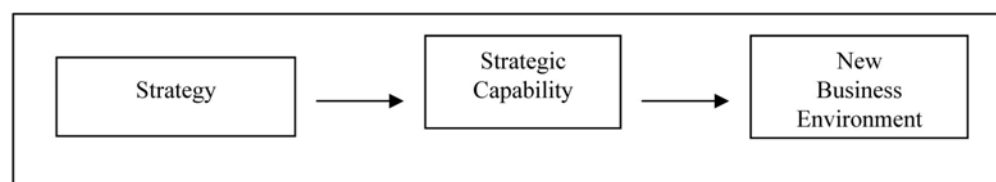
Figure 2. Chandler's Perspective: Strategy and Strategic Capability
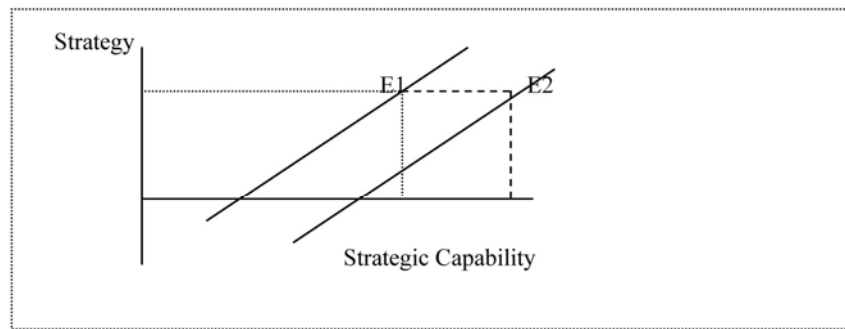
Figure 3. Strategy and Strategic Capability Equilibrium

Does a Lack of Health Insurance Elicit an Increase in the Rate

of Voluntary Military Enlistment in the U.S.?

The "Military Health Care Magnet Hypothesis," 1974-2007

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Abstract

This study addresses a question that has not been researched much previously, namely, does the unavailability of health insurance act as an incentive for persons to enlist in the military in the U.S.? This relationship is proffered as the "Military Health Care Magnet Hypothesis." The present study endeavors to provide insight into this issue within a cost-benefit framework. The empirical analysis uses annual data for the years 1974 through 2007, the only years to date for which all of the variables in the model are dependable after the end of military conscription in the U.S. in 1973. Both OLS and 2SLS results demonstrate, among other things, that the greater the percentage of the civilian population without health insurance, the greater the rate of enlistment in the U.S. Army.

Keywords: Military enlistment, Health insurance unavailability, Cost-benefit model

1. Introduction

In recent years, various dimensions of the health care industry have attracted considerable attention. The topics debated range from hospital costs, profitability, and efficiency issues to medical malpractice to physician staffing to the health care inflation rate (Chirikos, 1998-99; Daniels and Gatsonis, 1999; Given, 1996; Glied, 2003; Goodman and Stano, 2000; Hart et al., 1997; Jordan, 2001; Karsten, 1995; Koch, 1992; Okunade, 2001, 2003; Olsen, 1996).One of the most important and contentious issues in U.S. healthcare that has received the greatest increase in attention in recent years is health insurance coverage (Bharmal and Thomas, 2005; Bundorf and Pauly, 2002; Cebula, 2006; Dushi and Honig, 2003; Frick and Bopp, 2005; Gruber, 2003; Harris and Keane, 1999; Holahan et al, 2003; Kronick and Gilmer, 2002; Marstellar et al, 1998; de Meza, 1983; Newhouse, 1994; Nyman, 2003; Swartz, 2001; 2003).

This tremendous scrutiny and debate can be attributed to several reasons. Presumably, as argued in Dushi and Honig (2003, p. 252), at least part of this increased attention can be attributed to the fact that there has been a noticeable decline in health insurance coverage over the last two decades. Indeed, over a decade ago, Cutler (1994, p. 20) had observed that "About 15 percent of the population…are uninsured." More recently, for the year 2003, Bharmal and Thomas (2005, p. 643) observe that the number of uninsured reached 43.6 million or 17.3 percent of persons under the

age of 65. Even more recently, Frick and Bopp (2005) also emphasize that 17 percent of this population is without health insurance.

To provide perspective, "economic" concerns can in effect largely be categorized into those relating to efficiency issues and those relating to equity issues. The topic of the percent of the population without health insurance effectively falls into both of these categories. From a purely financial perspective, those persons without health insurance create an efficiency problem in that the healthcare system must, in the final analysis, "balance its books," i.e., payments for the uninsured must somehow be made. At issue is the efficiency/equity question of having those with private insurance and/or some other entity (be it government, taxpayers in general, or other source of funds) pay for the medical care of those without health insurance. From the perspective of medical care *per se*, one provocative issue is whether or not those without health insurance receive the same quality and quantity of medical care as those with health insurance. It could be argued that those without health insurance should not receive the same level and quality of medical care because their revealed preference/demand for health insurance is lower and therefore they value health care at a lower level than the medically insured do. This argument might seem substantive if in fact not having health insurance merely reflected health insurance preferences as opposed to limited purchasing power/income and/or other constraints to obtaining health insurance. For whatever reason, the percent of the U.S. population without health insurance is an issue of considerable political interest, as evidenced by the major health care reform pursued by the Obama administration in 2009.

The present study seeks to provide at least preliminary insights into a very different dimension of the overall health insurance issue. In particular, this study empirically investigates what is proffered here as the *"Military Health Care Magnet Hypothesis."* In particular, this study hypothesizes that the greater the percentage of the civilian population that is without health insurance, the greater the incentive at the margin for civilians to enlist in the U.S. military, *ceteris paribus*. In the interest of relevance, the study period runs from 1974 through 2007, thereby beginning with the first full year after the end of military conscription (the "draft") in the U.S. and controls for the Gulf War of 1990 and the wars in Iraq and Afghanistan. We adopt a cost-benefit framework to empirically test this hypothesis. We include as independent variables factors such as the percent of the civilian population without health insurance, measures of real income growth in the U.S., the percent of the population with a "veteran" status, the risks associated with military service during ongoing military conflicts, and other factors that are relevant to the enlistment decision process. Both OLS and 2SLS results provide considerable support for the central health care insurance/enlistment hypothesis.

2. Review of Related Literature

Before providing the framework and results of the present study, we review briefly some of the recent published literature on health insurance coverage determinants on the one hand and on military enlistment determinants on the other hand. Beginning with the former, the following observation by Swartz (2003) is relevant. In particular, Swartz (2003, p. 283) makes the observation that, simply put, many of those who do not have health insurance "…simply cannot afford to purchase it…" Swartz (2003, p. 283) proceeds to observe that many households "…cannot afford to purchase health insurance unless it is heavily subsidized." Swartz (2003, p. 283) also claims that most of those households that "…do not have access to employer-sponsored coverage…must purchase…health insurance in the non-group [individual] market…where insurance is typically twice as expensive [to the household] as employer-group coverage…," where the likelihood of purchasing health insurance is lower than otherwise (because of "the law of demand").

In the study by Dushi and Honig (2003), the focus involving healthcare insurance is rather different. In particular, in Table 1 of their study, Dushi and Honig (2003, p. 253) provide evidence on gender differences in the propensity to purchase group health insurance when the latter is available. Their data reveal that, overall, females in the labor force tend to have a lower "take-up" rate than males in terms of health insurance plans: 73 percent of the time for females versus 88 percent of the time for males. Dushi and Honig (2003) argue that some significant portion of this male-female take-up disparity is attributable to married women opting to rely on a spouse's health insurance plan. This male-female take-up disparity notwithstanding, when a health insurance plan is available through the employer, nearly three-fourths of the time women *do* take advantage of the option. Moreover, the presence of labor unions appears to increase health insurance availability.

Newhouse (1994) approaches the question regarding the propensity of the elderly to purchase health insurance from a different perspective. He observes that that most of the U.S. population age 65 and older are covered by Medicare. He also stresses that as a person advances in years, so does the incidence of health problems. Given the limitations on Medicare coverage, Newhouse (1994, p. 7) observes that many elderly persons regard Medicare coverage as insufficient to meet their needs. Indeed, apparently because of the latter consideration, Newhouse (1994, p. 7) finds that "…over 80 percent of Medicare beneficiaries…had some form of supplemental health insurance, with a third having individually purchased insurance."

The study by Frick and Bopp (2005) is concerned with the fact that between 15 and 20 percent of the U.S. population do not have health insurance. Frick and Bopp (2005) observe that the classic utility-insurance model makes it patently clear that having a very low income can seriously restrict the ability to purchase health insurance. The Frick and Bopp (2005) study not only focuses on the effects of poverty on health insurance purchases but also on other factors. Frick and Bopp (2005) deals with pooled cross-sectional/time series data, with the empirical estimation process revealing the following: the percent of the population *without* health insurance is an increasing function of the percent of the population whose income lies below the poverty level, the percent of the population that is female, and the percent of the population with only a high school diploma, with the first of these three variables being the most dominant.

Finally, the study by Cebula (2006) uses an aggregate state-level cross-section data set to examine the percent of the population without *health* insurance in the year 2000, and includes as an explanatory variable a measure of the effects of being either self employed or an independent contractor. The most interesting finding is that the percent of the population without health insurance is an increasing function of the percent of the population that is either self employed or independent contractors. The study also concludes that the percent of the population without health insurance is a decreasing function of median family income and the percent of the population age 65 and older and an increasing function of the percent of the population that is Hispanic. Thus, a basic conclusion found in the Cebula (2006) study involves the inability of people to *afford* health insurance, as found in Frick and Bopp (2005).

The political basis and economics of the military draft and the subsequent formation of the AVMF (all-volunteer military force) are set forth in a series of insightful, original studies by Tollison (1970) and by Tollison, Amacher, Miller, Pauly, and Willett (1973). Beyond the scope of these studies, Seeborg (1994) conducted a provocative study based on data derived from the National Longitudinal Survey of Youth, in which he concluded that the probability of enlistment is directly related to minority and poverty status, while controlling for ability and a number of other socioeconomic background variables. In addition, the Seeborg (1994) analysis of poverty "transitions" shows that a very large percentage of enlistees in the early 1980s who were living in poverty at age 17 had escaped poverty by 1990, i.e., that the military can serve as a mechanism for upward economic mobility for disadvantaged youth.

Segal, Bachman, and O'Malley (1999) study the differences in the propensity to enlist of various subgroups of potential enlistees into the U.S Military. The analysis furthers the idea that black youth regard the military as a vehicle for upward social and economic mobility. Hence black youth are more likely to enlist in the military compared to white youth. Furthermore the presence of a military parent, military grandparent or a military sibling within the family increases the propensity of a potential enlistee to enlist. This is consistent at least in principle with recent studies such as Kleykamp (2006) and Cebula, Menon, and Menon (2008), that find the institutional and cultural presence of the military within an area has a significant influence on enlistment decisions.

Warner, Simon, and Payne (2003) conclude that civilian job opportunities are the key consideration for high school graduates when pondering the decision to enlist. Although post high school educational opportunities and access played a role in such a decision, it was the overall economic opportunity available that was the most significant factor in an enlistment decision, especially among rural youth.

A very relevant recent study by Kleykamp (2006) highlights three areas of influence on military enlistment: individual educational goals; the institutional presence of the military in communities (as observed above); and race and socioeconomic status. The study was conducted in the state of Texas and based on individual survey data. The study analyses the relative risk ratios associated with each choice made by a potential enlistee.

Lastly, a study by Cebula, Menon, and Menon (2008) provides panel least squares (PLS) evidence at the state level for factors influencing military enlistment. This study deals with data for the 2003 through 2005 period and finds that, consistent with Kleykamp (2006) and Segal, Bachman, and O'Malley (1999), the stronger the institutional and cultural presence of the military within an area, the greater the proportion of the age-eligible population that enlists in the military. Furthermore, Cebula, Menon, and Menon (2008) also find that the greater the opportunity costs to military enlistment, the lower the enlistment rate, a finding consistent with Warner, Simon, and Payne (2003), as well as Seeborg (1994). Moreover, this study also finds a higher casualty rate as discouraging military enlistment.

Our review of the literature indicates that the lack of health care coverage reflects substantially the inability of the people to afford healthcare costs. The military could serve as an avenue to improve one's socio-economic status, especially when the opportunity cost is low and alternate opportunities are scarce. One important way in which the military could contribute to an individual's well being is by providing health care. Hence the argument that in an era of rising heath care costs access to health care through the military could provide an important incentive to enlist. The flip side of this issue is also poses an interesting question: If our hypothesis were indeed to be true, how would universal health care coverage impact military enlistment?

3. The Basic Framework

The basic framework adopted in this study focuses on the decision to enlist in the U.S military as a cost-benefit decision. In particular, the decision to enlist in the military, D^{enlist}, is predicated upon the *expected net benefits* of enlistment,

ENB^{enlist}. The latter is   treated as an increasing function of   the *expected gross benefits* of enlistment, EGB^{enlist}, and a decreasing function of the *expected gross costs* of enlistment, $EGC^{enlist,}$ such that:

$$ENB^{enlist} = f(EGB^{enlist}, EGC^{enlist}), D^{enlist}_{EGBenlist} > 0, D^{enlist}_{EGCenlist} < 0 \qquad (1)$$

Naturally, as evidenced in the studies referenced in the literature review above, there are a number of variables that typically are expected to exercise an influence over enlistment rates. To begin addressing these, the first focus is on the EGB^{enlist}, where:

$$EGB^{enlist} = g \text{ (economic benefits, Family/Cultural benefits)} \qquad (2)$$

The central hypothesis being empirically tested in this study is that the greater the percentage of the population without health insurance [UNINS], the greater the propensity to enlist [ENLIST] in the U.S. military, *ceteris paribus*. This hypothesis, dubbed here as the Military Health Care Magnet Hypothesis, is based fundamentally on the fact that those enlisted in the U.S. armed forces, along with their immediate families (spouse, children) receive free medical care provided through the military.   Given the increased proportion of the U.S. population without health insurance since 1974, free medical care provided by the armed forces should act as an attraction/incentive to potential enlistees, i.e., increase the EGB^{enlist}. Alternatively stated, the expected economic benefits associated with enlistment are expected to be greater the higher the percentage of the population *without* health insurance (UNINS), *ceteris paribus*. This is because enlistment brings with it health care without any health insurance premiums. Thus, the higher the percentage of the population without health insurance, the greater the EGB^{enlist} level.

In addition, the "family/cultural benefits" of enlistment are expected to be greater in an environment which has a higher presence of persons who are military veterans (Kleykamp, 2006; Segal, Bachman, and O'Malley, 1999; Cebula, Menon, and Menon, 2008). This is because enlistment is viewed as a socially approved and admired behavior and presumably receives positive psychological reinforcement, encouragement, and social approval in environments with a higher percentage of the population being veterans (PVET). Thus, the family/cultural benefits from enlistment are an increasing of PVET, *ceteris paribus*.

Hence, (2) initially becomes:

$$EGB^{enlist} = g \text{ (UNINS, PVET)}, g_{UNINS} > 0, g_{PVET} > 0 \qquad (3)$$

The level of EGC^{enlist} is expected to be an increasing function of opportunity costs of enlistment. These opportunity costs can be measured by potential economic opportunities from non-enlistment sources, measured here in the broad sense by the percentage growth rate of real GDP, GRRGDP. Accordingly, *in principle* paralleling Warner, Simon and Payne (2003) and Cebula, Menon, and Menon (2008), based on opportunity-cost reasoning, it is hypothesized that EGC^{enlist} is an increasing function of GRRGDP, *ceteris paribus*.

Furthermore, it is also expected that risk-averse behavior would treat a greater degree of risk in the form of the greater probability of being seriously wounded or a fatality under wartime conditions, namely, in the Gulf War of 1990, the War in Afghanistan, and in Operation Iraqi Freedom, WARRISK, as elevating EGC^{enlist}, *ceteris paribus* (Cebula, Menon, and Menon, 2008). Hence, the EGC^{enlist} is initially expressed as:

$$EGC^{enlist} = h \text{ (GRRGDP, WARRISK)}, h_{GRRGDP} > 0, h_{WARRISK} > 0 \qquad (4)$$

Substituting from (3) and (4) into (1) yields the following:

$ENB^{enlist} = f \text{ (UNINS, PVET, GRRGDP, WARRISK)},$

$$f_{UNINS} > 0, f_{PVET} > 0, f_{GRRGDP} < 0, f_{WARRISK} < 0 \qquad (5)$$

4. The Empirical Analysis

Based on the model expressed in (5), the following model is to be estimated *initially*:

$$ARMYRECR_t = a_0 + a_1 \ UNINS_{t-1} + a_2 \ PVET_{t-1} + a_3 \ GRRGDP_{t-1} + a_4 \ WARRISK_t + \mu \qquad (6)$$

where (data sources in parentheses):

$ARMYRECR_t$ = the number of army recruits in year t, as a percentage of the U.S. population in year t (National Priorities Project Database, 2008);

a_0 = constant;

$UNINS_{t-1}$ = percentage of the civilian U.S. population without health insurance coverage in year t-1 (U.S. Census Bureau, 1976; 1978; 1980; 1984; 1987; 1990; 1994; 1996; 1998; 2001; 2003; 2004; 2005; 2006; 2008; 2009);

$PVET_{t-1}$ = the percentage of the U.S. population who have served in the U.S. military as of year t-1 (Congressional Research Service, 2008; Council of Economic Advisors, 2009, Table B-34);

$GRRGDP_{t-1}$ = the percentage growth rate of real GDP (expressed in year 2000 dollars) over year t-1 (Council of Economics Advisors, 2009, Table B-4);

WARRISK$_t$ = a binary dummy variable =1 for the year 1990 (first Gulf War) and the years of the Wars in Afghanistan and Iraq; and

μ = stochastic error term.

The study period runs from 1974 through 2007. Basic descriptive statistics are provided in Table 1. The ADF and PP unit roots tests reveal that three of the variables in this initial specification are not stationary in levels: one (ARMYRECR) is stationary only in first differences; one (UNINS) is stationary in only second differences; and one (PVET) is stationary in levels but with a trend variable. The variable GRRGDP is stationary in levels. The ADF and PP results are provided in Table 2. Accordingly, in the estimate of equation (6), ARMYRECR is expressed in first differences, UNINS is expressed in second differences, and a TREND variable is included. The data deals with total annual number of army recruits in the US, hence it is not possible to distinguish by gender or race at the aggregate level.

Table 3, column (a) provides the results for our baseline model. We find that all four of the estimated coefficients exhibit the hypothesized signs, with three statistically significant at the one percent level and one statistically significant at five percent level. In addition, the TREND variable is statistically significant at the one percent level. The estimated coefficient on the ΔPVET variable is positive (as expected) and statistically significant at the three percent level, implying that an environment where there is a greater concentration of veterans is conducive to a greater propensity to enlist in the U.S. Army (Segal, Bachman, and O'Malley, 1999; Kleykamp, 2006; Cebula, Menon, and Menon, 2008). Consistent in principle with Seeborg (1999) Warner, Simon, and Payne (2003), and Cebula, Menon, and Menon (2008), the estimated coefficient on the GRRGDP variable is negative and statistically significant at the one percent level. This finding implies that the stronger the growth rate of the economy, the higher the opportunity costs of enlistment and the lower the net benefits thereof and hence the lower the rate of enlistment. Next, the coefficient on the WARRISK variable is negative and statistically significant at the one percent level. The latter finding implies that volunteers for U.S. Army duty are deterred from enlisting during actual war-time conditions, presumably because of the perceived higher risks of being either seriously wounded or killed in military engagements (Cebula, Menon, and Menon, 2008).

Finally, there is the finding for the key health care variable. The estimated coefficient on the variable UNINS is positive and statistically significant at the one percent level, implying that the greater the percent of the civilian population without health insurance, the greater the propensity for eligible young men and women to enlist in the U.S. Army. Thus, this result provides strong empirical support for the "Military Health Care Magnet Hypothesis."

We test for the robustness of our baseline model with three alternate specifications, the results of which are reported in columns (b), (c) and (d) of Table 3. We include the following additional variables in these specifications (data source in parentheses):

POPPRES$_{t-1}$ = the Presidential job approval rating in year t-1, an index that ranges from

0 to 100 (Gallup Poll, 2008);

TERROR$_t$ = a binary variable for the terrorist attach of September 11th: TERROR$_t$ = 1 for the year 2001 and = 0 otherwise;

COLLEGE$_{t-1}$ = percentage of the adult population age 25 and older with at least a bachelors degree in year t-1 (U.S. Census Bureau, 1976; 1978; 1980; 1984; 1987; 1990; 1994; 1996; 1998; 2001; 2003; 2004; 2005; 2006; 2008; 2009).

If a given U.S. President is very popular, his policies, including actual or potential military policies, may attract enlistees who "believe" in his cause. Alternatively, under certain conditions, even if temporary, there may be expected benefits from enlistment if a potential enlistee experiences or expects to experience greater self esteem from serving his/her country. For example, after the terrorist attacks on U.S. soil on September 11th of 2001, a surge of patriotism seemingly swept across the nation and at some level united Americans. Thus, the experience of terrorism on September 11th of 2001 (TERROR) and the manifestation of a popular President (POPPRES) each may act to increase the expected benefits of enlistment, *ceteris paribus*. Finally, the greater one's educational attainment, the greater one's labor force options. Hence, the greater proportion of the population with a college degree, the less appealing military enlistment will be (Seeborg, 1999: Warner, Simon, and Payne, 2003), *ceteris paribus*.

In Table 3, column (b), the variable POPPRES is included in the model; in column (c), the variables POPPRES and TERROR are included in the model; finally, in column (d), all three of the additional variables [POPPRES, TERROR, and COLLEGE] are included the model. In all three columns, the estimated coefficients on these additional variables fail to be statistically significant at even the ten percent level. On the other hand, the estimated coefficients on the four basic explanatory variables, UNINS, PVET, GRRGDP, and WARRISK continue to exhibit their expected signs; furthermore, nine of these 12 coefficients are statistically significant at the one percent level, one is statistically significant at the five percent level, and the remaining two are statistically significant at approximately the six percent level. Thus, there appears to be strong evidence that the Army recruitment rate is an increasing function of the PVET variable and a decreasing function of the GRRGDP and WARRISK variables. This conclusion is strengthened by the

fact that the coefficient on the UNINS variable is positive and statistically significant at the one percent level in all three estimates.

As an additional robustness check, we also consider the possibility that there is no reason to expect that there exists a significant time lag between the influence of either (a) the presence a military parent, military grandparent, and/or a military sibling or (b) a stronger institutional and cultural presence of the military on the one hand and the decision to enlist in the Army on the other hand (Segal, Bachman, and O'Malley, 1999; Kleykamp, 2006; Cebula, Menon, and Menon, 2008). Thus, the analysis now investigates the Military Health Care Magnet Hypothesis under the condition that ARMYRECR and PVET are contemporaneous.

Given that ARMYRECR and PVET are being treated as contemporaneous, the possibility of simultaneity bias arises. Accordingly, the analysis undertakes a 2SLS (two-stage least squares) estimation, with the instrumental variable being the two-year lag of the unemployment rate of the civilian labor force, UR_{t-2} (Council of Economic Advisors, 2009, Table B-42). This variable was the instrument of choice because (a) UR_{t-2} is highly correlated with $PVET_t$ and (b) UR_{t-2} is also not correlated with the error terms in the system.

The following equation is now estimated by 2SLS with the Newey-West (1987) heteroskedasticity correction:

$$ARMYRECR_t = b_0 + b_1 \ UNINS_{t-1} + b_2 \ PVET_t + b_3 \ GRRGDP_{t-1} + b_4 \ WARRISK_t + \mu' \qquad (8)$$

The results are presented in Table 3, column (e); all four of the estimated coefficients exhibit the expected signs and are statistically significant at the one percent level. The DW and Rho statistics imply the absence of any serious autocorrelation problems. Finally, the F-statistic is statistically significant at the one percent level, attesting to the overall strength of the model.

Thus, it can be reasonably inferred that the U.S. Army enlistment rate is positively impacted by a stronger institutional and cultural presence of the military (Segal, Bachman, and O'Malley, 1999; Kleykamp, 2006; Cebula, Menon, and Menon, 2008). In addition, the greater the growth rate of real GDP, the lower the enlistment rate (Seeborg, 1999; Warner, Simon, and Payne, 2003; and Cebula, Menon, and Menon (2008). Furthermore, it can be inferred that wartime conditions and the associated greater expected risk of being seriously wounded or killed create a disincentive to enlist (Cebula, Menon, and Menon, 2008). Finally, the coefficient on the health insurance variable is positive and highly statistically significant, implying strong support for the "Military Health Care Magnet Hypothesis." Clearly, these 2SLS findings are all consistent with the OLS findings.

5. Conclusion

This study addresses the following question: "Does the unavailability of health insurance act as a incentive for persons to enlist in the military?" Within a cost-benefit framework, the present study endeavors to provide insight into this issue, referred to here as the "Military Health Care Magnet Hypothesis". The OLS and 2SLS results provide substantial evidence that the greater the percentage of the civilian population without health insurance, the greater the rate of enlistment in the U.S. Army. Voluntary enlistment in the U.S. Army also is positively impacted by a greater presence of military veterans (which "promotes" enlistment). Furthermore, it is negatively impacted by a more rapidly growing economy (a proxy for higher opportunity costs) and military conflicts/wars (risk-averse behavior with military conflict being a risk factor that elevates the expected probability of being wounded or killed).   Thus, the AVMF (all-voluntary military force) market appears to function as the free enterprise system would expect.

Finally, it may be worthy of note that if the "Military Health Care Magnet Hypothesis" is valid, then it logically follows that if a system of *de facto* universal health care is in fact instituted in the U.S., there may be unforeseen externalities from a military recruitment perspective. In particular, implementation of universal health care would naturally result in a decline in the expected gross benefits of enlistment. This is because would-be enlistees will factor the same into their cost-benefit analysis of whether to enlist. Clearly, as the AVMF market factors the availability of universal health care outside the confines of the military into its marginal enlistment decision calculus, for many the expected net benefits (of enlisting) will decline sufficiently as to create a no-enlist decision. In turn, it follows that some form of additional incentives will be needed in order to induce sufficient recruitment/enlistment. We contribute to the debate on universal health care coverage by pointing out the possibility for an unintended consequence, namely a decline in military enlistment. Thus if universal health care is instituted, it could increase the cost of military recruitment in the future.

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Table 1. Basic Descriptive Statistics

Variable	Mean	Standard Deviation
ARMRECR	0.01639	0.0516
UNINS	14.604	1.0106
PVET	0.0438	0.000154
GRRGDP	2.9333	1.911349
WARRISK	0.2083	0.414851
POPPRES	56.166	10.02461
TERROR	0.041	0.204
COLLEGE	22.29	3.35
UR	6.1615	1.383

Table 2. ADF and PP Unit Root Test Results

Variable Differences	ADF, PP Level	AD, PP Level Plus Trend	ADF, PP First Differences	ADF, PP Second
ARMRECR	-1.53, -1.49	-2.39, -2.32	-4.18*, -4.12*	-------
UNINS	-1.65, -1.62	-2.03, -1.99	-2.59, -2.54	-4.15*, -3.99*
PVET	-1.98, -1.88	-4.02*, -3.79*	-------	-------
GRRGDP	-4.01*, -5.65*	-------	-------	-------
POPPRES	-3.54*, -3.48*	-------	-------	-------
COLLEGE	-1.29, -1.27	-1.45, -1.42	-2.32, -2.22	-5.76*, -5.16*

*Critical value for rejection of null hypothesis at 95 percent confidence level = -2.89.

Table 3. Estimation Results for ΔARMYRECR

Variable	(a)	(b)	(c)	(d)	(e) 2SLS
Constant	-0.002	-0.003	-0.003	-0.003	-0.005
ΔΔUNINS	0.0005***	0.0005***	0.0005***	0.0005***	0.0006***
	(3.5)	(3.52)	(3.53)	(3.04)	(4.02)
PVET	0.54***	0.679**	0.691*	0.679*	1.15***
	(2.42)	(2.16)	(2.08)	(2.01)	(2.70)
GRRGDP	-0.0003	-0003***	-0.0003**	-0.0003***	-0.0003***
	(-4.20)	(-3.98)	(-3.93)	(-3.70)	(-3.62)
WARRISK	-0.028	-0.03***	-0.031***	-0.0315***	-0.0275***
	(-4.63)	(-4.33)	(-4.18)	(-4.10)	(-3.21)
POPPRES	-------	0.00003	0.00004	0.00003	0.0001***
		(1.16)	(1.15)	(-0.8)	(3.61)
TERROR	-------	-------	-0.0004	-0.0004	
			(-0.84)	(-0.68)	
COLLEGE	-------	-------	-------	-0.0003	
				(-0.31)	
TREND	0.0001	0.0001***	0.0001***	0.0001***	
	(4.01)	(-4.19)	-3.9	-4.01	
DW	2.23	2.25	2.31	2.26	2.20
Rho	-0.12	-0.13	-0.16	-0.13	-0.10
R2	0.60	0.63	0.63	0.64	
AdjR2	0.49	0.49	0.46	0.45	
F	5.17	4.54***	3.68**	3.05**	6.25***

Terms in parentheses are t-values. Δ is the first differences operator;

ΔΔ is the second differences operator.

***indicates statistically significant at one percent level.

**indicates statistically significant at five percent level.

*indicates statistically significant at ten percent level.

Family Businesses' Views on Internationalization:

Do They Differ by Generation?

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Abstract

The purpose of this exploratory study is to compare the views on internationalization (i.e., global business attitudes) of family businesses run by 'first', 'second' and 'third' generation owners. It is common to investigate/ ascertain different generational perspectives and its impact on strategy and performance. This research compares differences in internationalization views of multi-generational owners. It is hoped that conclusions can be derived as to the impact of succeeding generational owners on internationalization. A mail survey of US family business owners based in Ohio was conducted. The results revealed remarkable consistency and similarity in views pertaining to internationalization by the first, second, and third generation owners. Family business owners irrespective of their generation do not monitor foreign markets, desire relations with foreign family owned businesses, etc. They also felt their businesses were not affected by foreign competitors.

Keywords: Internationalization, Family business, Views, Generations

1. Introduction

Internationalization is the "process by which firms both increase their awareness of the direct and indirect influence of international transactions on their future, and establish and conduct transactions with firms in other countries" (Beamish 1990, p.77). For family businesses, their views on internationalization are largely unknown. Given that 90% of US businesses are family businesses, account for 60% of employment

(Family Business Statistics 2009), and because family businesses can be perceived differently from non-family businesses (see, Carrigan and Buckley 2008; Cooper, Upton and Seaman 2005), the extent of their internationalization needs to be understood. Some evidence is beginning to come in regarding the internationalization path of family owned businesses (henceforth FOBs) (Zahra 2003). In general the studies have been mixed in suggesting that FOBs from different nations are starting to recognize and capitalize on global opportunities (Claver, Rienda, and Quer 2009). Social science theories acknowledge that perceptions generally occur before behavior. Likewise, internationalization views could precede actions. Understanding perceptions of globalization could be relevant to explaining their approach to internationalization.

The purpose of this exploratory study is to compare the views on internationalization (i.e., global business attitudes) of family businesses run by 'first', 'second' and 'third' generation owners. By comparing differences in internationalization perceptions, it is hoped that conclusions can be derived as to the impact of succeeding generational owners on internationalization activities. It could also provide clues as to the continued limited involvement of FOBs in foreign markets. This finding can be useful in getting more US family businesses involved overseas. As the US Commerce department has reported, only 240,000 small and medium sized companies (the bulk of family businesses) export a third of US merchandise exports (Reilly and Murphy 2009). So it is seems clear that US family businesses that

are typically small and medium sized enterprises (SME) are not actively internationalizing proportionate to their numbers. Also, Debicki, Matheme, Kellermanns, and Chrisman (2009) in a review of the family businesses research noted the paucity of emphasis on international strategy (p.159).

Some studies have looked at factors that influence the internationalization of FOBs (Davis and Harveston 1998; Claver et. al. 2009; Zahra 2003). Factors such as technology (Davis and Harveston 2000), family structure (Claver et al. 2009), and ownership arrangements (Zahra 2003) have been postulated to explain FOB commitment in foreign markets.

While there are facilitating factors favoring internationalization, the inherent nature of family businesses may deter some firms from seeking international involvement. For instance, Gallo and Sveen (1991) have suggested that the family owned character of a business might be challenged by internationalization. That's partly because the internationalization process could cause the firm to change its objectives, culture, structure, and strategy- an unwelcome outcome.

In line with buyer behavior theory that suggests that consumers will have a positive attitude towards a product before they purchase it, we expect that views on globalization of FOBs need to be determined. So, the impact of generation differences in levels of internationalization is not conclusive yet. Claver et. al. (2009) say it has no influence. Fernandez and Nieto (2005) say it does. Perhaps understanding views on internationalization by generations can clarify this issue. That is the purpose of this research.

This study contributes by investigating differences in multi-generational owner perceptions of internationalization. Specifically, what degree are the operations of family businesses affected by increased globalization? For instance, are foreign competitive threats and rapidly changing international environments credible concerns? Do they continuously monitor the international marketplace for exchange rates, political risk, etc. shifts? Are global dimensions integrated into domestic business decisions? The approach has not been undertaken in the literature.

This paper first provides a brief overview of the theoretical and conceptual foundations and uses them to present the hypothesis. In the second section, the research methodology is provided. Next, the results are presented. Finally, the conclusions, recommendations, and future research directions are provided.

2. Conceptual Origins

2.1 Generational Differences

While, it is rare to find three successive generation leaders of family businesses (Aronoff 1999; Grote 2003), the presence of generations is the endearing difference between family businesses and non-family businesses. When it comes to generational issues in family business literature, there has still been a pre-occupation with succession (e.g., Cater and Justis 2009; Miller, Steier, and Le Breton-Miller 2003; Brenes, Madrigal, and Moilina-Navarro 2005; Venter, Boshoff, and Maas, 2003). For instance, a more recent review of family business research (Debicki et. al. 2009) found that 15.1 percent of articles in four journals between 2001-2007 focused on succession.

Unfortunately, there doesn't seem to be much about differences between generational owners' characteristics and views. However, there is some information about the attributes and motivations of founders (1st generation) and successors (Chrisman, Chua, and Sharma 1998; Sharma and Rao 2000; Handler 1994). For instance, Sharma (2004) summarizes writings from various studies and concludes that founders exert considerable influence on the culture, values, and performance of the company (p10). It is from these studies that we gleem the differences between generations of family business leadership.

2.1.1 Successor Attributes

Attitudes and behaviors of family businesses can vary by generation (Welsch, 1991; Swinth and Vinton, 1993). Some studies have tried to understand founders' long term influence and relationship with other family and non-family members. Davis and Harveston (1998) implied that 'successive generation' leaders are influenced by many individual, family, and organizational factors (also, see Goldberg 1996). Lambrecht (2005) added that the multigenerational transfer process should address the soft elements of entrepreneurship, freedom, upbringing, etc.

It appears attributes can vary by country. For instance, Sharma and Rao (2000) compared Canadian and Indian successor attributes and found that while 'integrity' and 'commitment' ranked high for both, the Indian owners rated 'blood/family relations' higher. Alternatively, the Canadian owners rated interpersonal skills, performance, and experience higher than the Indian sample. In the South African context, Venter et. al. (2005) found the relationship between the successor and incumbent, among other factors critical to succession success.

2.1.2. Generations and Entrepreneurship

Another thought trend that may suggest differences in generational views could be entrepreneural tendencies. Here again, studies have not found strong correlation with succeeding or subsequent generations. Age of the CEO also does not suggest entrepreneurial or contemporary thinking (de Pontet, Wrosch, and Gagne 2007). Or at least does not over

ride the "conformity" norm. Lee (2006) did not find a significant relationship between CEO age and entrepreneurship. Their findings was further confirmed by Kellermanns et. al. (2007) that comment that "even if a family firm member becomes a CEO at a young age, he or she may not have the power to enact entrepreneurial behavior (p.8)." But, Lee (2006) cautions "family business owners to exercise a certain degree of flexibility (p.187)" to entice second generations to stay. This implies that cases of extreme differences may result in organizational exit. In conclusion, it appears the selection and grooming process in family businesses is designed to identify smiliarities rather than differences. So we would not expect different views of globalization by multiple generations.

2.2 Views on Internationalization

There are conceptualization and anecdotal evidence for increased internationalization. Some studies have dealt with some views on internationalization tactics. For example, owners of family firms elsewhere in the world frequently prefer to do business with other family companies (Nelton, 1995a). Further expectations are for more joint ventures between family companies across countries and cultures (de Farias, Nataraajan, & Piros 2008). Also expected are cooperative endeavors between multinational companies and family firms (Swinth and Vinton, 1993; McKibbin and Pistrui, 1997) particularly as multinationals continue to reduce their operations and rely increasingly on smaller firms for products and services (Nelton, 1995b). As to whether family businesses prefer to deal with their own kind, Wong, Reynolds, and Wong (1992) found that immigrant Chinese family firms in the San Francisco Bay area found their success rested on kin-ship relations and systems. Swinth and Vinton (1993) have argued that the likelihood of success for an international joint venture increases when both partners are family owned businesses since both firms have shared values and goals that enable them bridge cultural barriers more effectively than publicly held firms. It therefore seems that family ethnicity tied to a certain country increases the likelihood of international family business connections. Alternatively, Lansberg and Perrow (1991) found that highly successful family businesses in Latin America called Grupos have found duplicating their success in the US difficult.

2.3 Internationalization by Family Businesses

Gallo and Sveen (1991) discussed the facilitating and restraining factors on the internationalization of family businesses. Five factors – objectives and strategy, structure, culture, life cycle, and its international characteristics were used to rationalize the family firm's internationalization. They suggest that family businesses desiring to internationalize should take advantage of facilitating factors while simultaneously overcoming restraining factors. Following Gallo and Sveen (1991), a number of studies have looked at the internationalization process of family businesses (Zuchella, Palamara, and Denicola 2007; Graves and Thomas 2008).

Some research still subscribe to the notion that the nature and character of family businesses is challenged by the internationalization process (Nelton 1996; Claver et. al. 2009). They argue that family businesses tend to have certain shortcomings (e.g., resource limitations) particularly at higher levels of internationalization (see, Graves and Thomas 2006).

2.4 Internationalization by Generations

That family involvement affects the extent of internationalization is significant, but it does not explain generational differences in views. One study that investigated generational impact on internationalization is Claver et. al. (2009).

Following observations that family businesses in second and successive generations are more likely to be present in international markets (Fernandez and Nieto 2005), they hypothesized (unsupported) that the number of generations running a family firm will increase the likelihood of using entry modes that involve a high level of commitment. Their findings did not substantiate this and they argued that later generations were consumed with the 'transfer process' to be concerned about international opportunities. Fernandez and Nieto (2005) similarly argued and proved that newer generations bring new ideas, are more prepared, and trained thus learn towards internationalization- a finding that conflicts with Claver et. al. (2009).

Davis and Harveston (2000) used age as a surrogate for generations. In other words, in a multigenerational business the older owner must represent the first generation. On this basis they hypothesized that older family business entrepreneurs would be less likely to internationalize. Their analysis supported this notion. Using age as a surrogate makes sense if it is shown that multiple generations are involved in the firm simultaneously. Graves and Thomas (2008) found (based on qualitative case study) that succession to younger generations did not lead to greater internationalization of the family businesses.

In summary, the literature is inconclusive as to the impact of generations on internationalization. However, a strong leaning suggests conformity and uniformity between successive generations (Kellermanns, Eddleston, Barnett, and Pearson 2008). So it was expected that no differences in views on internationalization would exist. Additionally, it was expected that few family businesses would monitor global changes or integrate them into their domestic decisions unless as Gallo and Sveen (1991) have suggested, they have an international dispositions such as traveled abroad, speak foreign languages, or have immigrant connections.

3. Research Design

A mail survey of family businesses from Northwest Ohio, USA was done. The data collection method was deemed cost effective and reliable enough to generate a large response pool for analysis. It was considered appropriate to address research on family business issues (Handler 1989). Mail survey was judged superior to other formats such as web survey because of external validity concerns. The objective of this study was to determine whether views about globalization varied by generations.

3.1 Questionnaire

The questionnaire was designed to first distinguish/screen out non- family business owners and determines their current generation status. Eight five (85) percent of the respondents identified themselves as family businesses. The following six questions were asked of all family business respondents.

(i)Whether their family businesses were affected by direct (same businesses) or indirect (similar businesses) foreign competitors?

(ii) Whether family businesses continuously monitored changes in the global marketplace?

(iii) Whether family businesses integrated global considerations in making domestic business decisions?

(iv) Whether family businesses have business ties with family businesses in foreign countries and their preference for dealing with foreign family businesses?

(v) Whether overseas suppliers were used, if so, what stimulated such decision?

(vi) If the family business has any foreign customers or operated in foreign markets?

3.2 Scale and Analysis

Categorical scales (yes, no) were used for all questions. Nominal scales are typically used for internationalization research where responses by percentages are desired. Also, the nature of the questions above lends themselves best to non-parametric measures. We wanted respondents 'truthful' answers as opposed to perceptual feelings that would be the case if interval scales (e.g. Likert) were used. It should be noted that some authors (e.g., Coulter, Zaltman, and Coulter 2001) suggest that respondents using the Likert scale yield scores close to the midpoint.

The percentage of family businesses being run by the first, second, and third generations were 38.1%, 37.5%, and 18.8% respectively. So, Pearson's chi squared goodness of fit analysis was used to test for significance on responses to the six questions.

3.3 Sample

The sample frames used were Ohio Manufacturers Directory and the University of Toledo Center for Family Business membership roster. Five hundred firms were selected from counties identified by the former source as constituting "Northwest Ohio". Respondents were dispersed across all industrial sector with the most being manufacturers of machinery and computers (21%), food and kindred products (9%), fabricated metal products (9%), rubber and plastic products (5%), and primary metals (5%). Their self reported annual sales ranged from $500,000- $10 million with most having sales of $1-$5 million annually. The top two categories in terms of annual sales were $1-$5 million (36%) and above $10 million (19%).

3.4 Mailing Frequency and Response Rates

A pre-test and two mailings were done. A pretest using 50 randomly selected respondents generated 14 responses (28% response rate). The initial mass mailing of 450 generated 125 responses (27.77 % response rate). A follow up mailing to 361 non-respondents from the pretest and initial mailing generated 57 additional responses (15.8 % response rate). Thus, a total of 196 responses were received of which 187 were usable. The effective response rate for the study was 37.4 percent.

4. Results

Table 1 shows the results based on the questions posed. The null hypothesis of no generational differences in responses was accepted. So, as expected no significant differences in views were obtained. Views on internationalization were consistent across generations. As we expected, the 'conformity' culture bred in successive generations of family business members reveals itself in consistency in responses. Although, there were no differences in the 'yes-no' views on the questions, it should be noted that responses from the most recent generations (3rd) were strongly negative.

When asked whether their businesses were affected by direct (same business) foreign competitors, majority felt that it was not. This view was unanimous across the three generations.

How about the impact from foreign businesses in similar businesses? Here again the responses was mostly that they were not affected. Majority respondents said 'no'. Again, the third generation respondents were more strongly negative.

To capitalize on opportunities in the marketplace, businesses need to monitor environmental developments. If these developments are not monitor that could be an indication of lack of interets. So the question about whether the international marketplace was monitored continuously is revealing. Respondents did not express any desire to monitor global markets.

Based on the responses to 'monitoring foreign markets', it is not suprising that global considerations were not taken into account in making domestic decisions. Global markets were seen as immaterial or irrelevant to their operations in domestic markets.

As to whether they desired business relations with family businesses in other nations, the answer was negative. So Wong, et. al. (1992) sopposition that FOBs desire doing business with each other was not supported.

A related question is their desire to do business with FOBs in foreign makets was not supported. Majority of respondents irrespective of generations did not indicate prefrenece for business with foreign FOBs.

5. Conclusions

The study shows that family businesses' views about internationalization did not vary by generations. They were remarkably consistent in their views on internationalization. Collectively, their perceptions of the benefits of internationalization are unappreciated. So it appears that if a family business does not get involved in foreign markets in the first and second generations it is unlikely to do so in later generations. The third generation's views were strongly more negative on internationalization than the first or second.

Interestingly, it is nonfamily managers that are more likely to engage in internationalization activities (Claver, et. al. 2009). The findings lend credence to the limited involvement of US FOBs in foreign markets.

6. Recommendations

If it is generally accepted that in today's global marketplace, entreprises must participate to survive, the views of these respondents are sobering. So much effort needs to to put into educatiing family business about global opportunities. Efforts probably should be on the younger generations as they seem less impressive by internationalization. Family business owners are encouraged to monitor the global environment for opportunities and threats therein. This can very readily be done by monitoring exchanges rate movements, trade agreements, regional economic associations, etc or simply by subscribing to journals and periodicals that repost on global business issues. Knowledge and interpretation of the global environment can be obtained through many public and private educators.

Many international issues affect many domestic business issues. Family businesses are requested to integrate global considerations into their domestic decisions. For instance, when choosing advertising agencies, the probability of using that agency for future foreign market operations should be contemplated. It would be relevant to use agencies that have some international presence.

Family businesses are encouraged to actively seek out foreign family businesses for business relations. Belonging to family business associations with foreign membership could achieve this. Alternatively it could be achieved through direct solicitation when foreign partners or business associates are needed.

First and second generation owners of family businesses should be more aggressive in getting into foreign markets or at least encouraging younger generations to be globally centered. Later generations of family businesses do not seem to be adventurous towards foreign markets. As recommended earlier, all family members active in the business should be involved in the firm's international activities to ensure continuity.

7. Further Research Issues

Getting views on internationalization of FOBs from other nations will provide a more robust assessment of this issue. If generational differences in views are obtained, emphasis should be focus on the younger generation.

8. Limitations

Using respondents from Ohio limits the ability to generalize to a broader universe. Also, utilizing non-parametric measures and testing may hamper the robustness of the analysis. That is, using percentages as the basis of argument may be limited compared to more robust methods (e.g., betas in regression analysis)

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Table 1. Chi-squared results

Q1: Is your business affected by direct (same business) foreign competitors?

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	24	23	8	160.89	12	.000	
No	31	29	21	124.464	12	.000	187

Q2: Is your business affected by indirect (similar businesses) foreign competitors?

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	25	22	8	168.37	12	.000	
No	28	24	20	136.73	12	.000	187

Q3: Does your business continuously monitor changes in the international marketplace (e.g., exchange rates, trade deals, etc.)

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	15	15	2	179.022	12	**.000**	
No	46	43	27	139.806	12	**.000**	187

Q4: Are global considerations considered in making business decisions in the US market?

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	15	16	7	166.916	12	**.000**	
No	44	42	23	126.894	12	**.000**	187

Q5: Do you have any business ties to family owned business in foreign countries?

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	7	8	2	169.044	12	**.000**	
No	54	51	27	129.99	12	**.000**	187

Q6: Would you prefer to conduct business with family owned businesses in foreign markets?

Response	1st Gen	2nd Gen	3rd Gen	χ & Likelihood Ratios	df.	Sig	Valid cases
Yes	10	14	5	169.623	12	**.000**	
No	23	14	9	129.852	12	**.000**	187

The Experience and Inspiration for Mainland China of Preened Funeral Arrangement in The United States and Taiwan

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Abstract

Preened funeral agreement is a contract of planning a series of issues after the death during his lifetime. The contract can greatly reflect the life planning, and respect for the man's personal wishes. Preened funeral agreement has carried out quickly in the United States, Canada and Japan with many experiences. It is very significant for mainland China to Sum up the experience in United States and Taiwan, with the advent of the aging time, the social security system is in transition. It is necessary to learn from their experience and build up preened funeral agreement.

Keywords: Aging, Preened funeral agreement, Planning, Social Security

1. What is the preened funeral agreement?

Kongzi says: "When a person is alive, treat him according to etiquette, when a person dies, bury him according to etiquette, and pay homage to him accordance with the courtesy." "Life and death are both great," he says, "death is the renewal of life," and we need to respect life and see death matters as life. Tagore once said: "One has no plans of life is like a ship without direction." the peaceful attitudes of life and death from Sages reflect the broad-minded human beings of "from start to finish," but also reflects the eager to life-plan. The preened funeral agreement reflects the attitude of life and death "from start to finish", and the ultimate breadth of life care.

The preened funeral agreement in The United States refers to prepare his burial, which stresses the "contractual nature", while Japanese preened funeral agreement stressed setting their own funeral program and without trouble to the survivor. In this paper, we use the definition which Long Deng, Youzhi Huang have given in 2007. Preened funeral agreement refers to "A contractual guarantee support to consumers, before signing the contract, the funeral industry should show the funeral-related information and related services or goods". For consumers, if they prepared in advance for their funeral matters, they will have peace of mind and a greater courage to face the rest of his life. Sometimes , the remaining issues after the death of are quite cumbersome, such as a variety of procedures of death, transform of ownership of property, and these can be mostly entrusted to a lawyer or accountant, the funeral and burial matters after the death is a scope of preened funeral agreement. but in aging society, not only those who are reborn in the "die" issue, as well as comforting senior partner's emotion, the sacrificial support of the dying by the follow-up, and supporting old people matters, hospice care, dignity, maintenance, etc. family members is difficult to deal with those things comprehensively with grief. If a holistic approach to customer service adopted, the situation will be greatly changed.

Perfect service system contains related services about mainly the lives of senior citizens, medical, psychological, legal, property, and funeral form a strategic alliance with all the related industries, creating an organic network of close cooperation. This would be a powerful system combined the funeral services with social welfare, medical, legal, religious, consulting and other professional services together, and build an environment of powerful performance and create the ultimate all-round care service system.

2. the functions and features of preened funeral agreement in America and Taiwan region

2.1 Functions

In the aging society, a large number of old people need to rely on self-reliance aspect of family, social welfare and convenience of the region from a life of self-care and the economy. The preened funeral agreement has the function to prepare for the future and the funeral matters when the old people are in economic self-sufficiency. From the perspective of an aging society, the implementation of preened funeral agreement has the following three functions:

1) Information sharing, exchange of experiences. Including concepts related to the spread of Pure and information to the public.

2) Value clearing. Can help individuals form a correct understanding of death and resist unhealthy effects.

3)   Services Arrangements. Can affect the old people with the positive and healthy attitude to arrange the funeral, arrange legal issues, and health insurance.

2.2 Features

The preened funeral agreement In the United States and Taiwan have the characteristics of the following points:

1)   Industry has the responsibility to make contractual services for publicity and explanation.

2)   This will put an end to previous consumers who lacking of understanding of relevant information and can not be implemented effectively choice, and this can provide personal characteristics of the funeral service options. It will be greatly different from the traditional funeral.

3)   Consumers can choose services and goods.

4)   The nature of the preened funeral agreement is for consumers personalized service. Consumers will choose the right products and services based on their consumption capacity, as well as the families of the views and religious beliefs.

5)   Consumers have the right to unilateral termination.

6)   The service will be got in the future, people can not fully grasp the risk, and therefore, without prejudice to the rights of the company, the consumer should have the right to terminate a contract. Or, the freedom and flexibility conception should also be equipped in the contract. This is guaranteed by law.

7)   The signing of contracts should respect the wishes of customers.

8)   During the traditional funeral, the families based on customs often spend a lot of money but have the better result. The contracting parties will need to be respected, when the parties do not have the "capacity", the can be down by family members under the provisions of the law guardians of the sign.

9)   The price of the preened funeral agreement is clear and open.

10)   The preened funeral agreement has a clear sense of charges. In the face of inflation pressures, companies need to estimate the cost.

11)   Fees of the preened funeral agreement under preservation and safely operation.

12)   Foreign fund are managed by professional insurance companies for investment to achieve the preservation and appreciation.

13)   Process standardization, process transparency. Simple, dignified, distinguished, 24 hours and personalized service, family members can be assured of professional service staff who with a clean image and a professional knowledge.

14)   The Government has clear regulatory measures.

15)   Can be used as investment tools to reject to inflation.

3. The experiences of the preened funeral agreement in America and Taiwan region

3.1 The experiences of the preened funeral agreement in America

The preened funeral agreement has been implemented for half a century in the United States, which has accumulated much experience and there are also some problems.

(A) Promotion and sell of the preened funeral agreement

in the United States, more than 43% of old people who above 50 have been introduced the preened funeral agreement about funeral. Of which up to 44% in Ohio Erie, Rue-state of 29% is min; more than 39% of people over the age of 50 have received introduction about the preened funeral agreement of burial. The proportion of Erie is the lowest 28% of the state. Up to 32% of people more than 50 years of age have bought the products. The proportion in Alabama, Pennsylvania is high, and in California and Illinois is low. (See Table 1)

(B) the purchase of goods and services

In all purchased goods and services, cemetery (tower-bit, tomb) at the highest proportion, accounting for 27%, tombstone (coffins, graves) second, accounting for 18%. From the perspective of state, the purchase of cemetery (tower-bit, tomb), the largest is in Alabama and Pennsylvania, respectively, 42% and 40%, at least in California, for 26%. Other goods and services are also similar, Alabama and Penn State ran up respectively 34% and 27%, and the least proportion is 19% of California. (See Table 2)

(C) The payment of the preened funeral agreement

The proportion of leasing payments of the preened funeral agreement about funeral in the United States is 41%, 47% payable in installments. Illinois, Pennsylvania, Ohio and California prefer a lump sum, the ratio were 66%, 63%, 60% and 50%, Alabama, on the contrary, like the lump-sum payment is greater than the proportion of installment,

respectively, 42%, 37%.

Considering the preened funeral agreement about burial, the Americans prefer a lump sum, there are 60% of the lump-sum option, the sampling of the five states also prefer lump-sum payment. (Table 3)

(D) The use of the fund

The fund of the preened funeral agreement collected is usually placed on the trustiest fund to invest in universal life insurance, the rate is up to 30%, the proportion of Illinois also reached 28%, and other types of investment accounts for 14%. There are also a high percentage of people who do not know the flow of funds paid by California, 60%, 56% in Alabama. (See Table 4)

(E) The specifications

U.S. states made different transaction management standards of the preened funeral agreement, the difference is quite big. States also have the different legal norms of the consumers to purchase a cemetery deeds. For example, California provides funeral goods and services, fees and charges all join the trust, the provisions of 30 percent in Florida, Maryland, and the payment of the Trust Deed provides that 100% of the trust during his lifetime, the coffin 80% of the trust; to allow the administrative costs of the trustee may withdraw California administrative costs, but not more than 4%, Florida is not limited to the amount of the provisions of New York State administrative costs must not exceed 1% of the 0.75 trust fund shall be expressly mentioned; contract can be revoked; in the termination of the trust, consumers are given full contractual payments, the California provides to recover 100% of the principal plus interest, subject to the deduction does not exceed 10% of the principal amount of administrative costs and to recover the costs, the provisions of Florida consumers can recover all the principal within 30 days, but the interest owned by the seller; Trust deposited in the fund, the California provision may, under certain conditions, to buy government bonds, government-guaranteed securities, the Federal Deposit Insurance Corporation guarantees bank, or certain funds only exist in Florida provides a national or state bank or trust company, Maryland, the agreement requires the existence of the fund to pay the assignee's interest-bearing accounts or the federal guarantee of bank trust accounts, New York, the fund shall be deposited in interest-bearing bank accounts; fund investment channels, the Florida offer a variety of different investment channels, Maryland require more stringent New York State is not allowed investment; another Florida also building consumer compensation fund to compensate for damage caused due to investment failure of consumers, each extract 1 U.S. dollars, Texas has a similar provision.

3.2 The experiences of the preened funeral agreement in Taiwan

The preened funeral agreement in Taiwan has progressed not long age, obvious advantages and problems exposed with the gradual unfolding.

There is hundreds of Contract manufacturers in Taiwan, and mostly of them are small companies. Only five or six companies have certain scale, while most of them make regional promotion. To the end of 2004, the preened funeral agreement outstanding to 10 million, accounting for 5% of the total market, however, compared with the life insurance, Taiwan still has much room for development.

Deng Long, and Huang showed that the development of preened funeral agreement in Taiwan is still "embryonic period", although a variety of information on websites and attractive to consumers, but the system is still far from mature. They sum up the status of development of the preened funeral agreement of the following aspects:

a)   Consumer protection mechanisms are inadequate. Because of the preened funeral agreement performance time of uncertainty, the longer the higher the risk for consumers. Businesses closed down or are not operated or unilaterally increase the protection of consumer rights when there are suitable arrangements yet.

b)   The relevant laws and regulations are not sound. As mentioned earlier, the U.S. state of his lifetime contract requirements are more detailed, but Taiwan was only a simple 12 laws and regulations referred to. When face disputes, consumers become vulnerable groups easily.

c)   Tips are not clear. Majority of the Taiwan-related services, many websites in order to function promotion points as a lifetime contract finance and investment, but often after the signing of contracts, the two sides there will be greater awareness of performance gaps, while the United States and Japan, as Taiwan does not have the provisions of the industry without at regular intervals to provide consumers with the latest service changes, so when the huge performance gap is likely to affect consumers adversely.

d)   No arbitration for dispute. NPO non-profit charitable organizations involved in operations in Japan, while only merchants and consumers, no comparable full-time institution or organization in Taiwan.

e)   There is no management oversight system. The preened funeral agreement with complicated rituals and processes are determined by the services and goods. Without accompanying regulatory system, companies has a lot of space not follow the agreed implementation, this will result in the adverse development of the industry. The need for official or private management of organizations has credibility.

f)   There is no proper mechanism for compensation. In accordance with experience in tourism in the United States, "the compensation norms and mechanisms" set up, once the relevant companies can not perform or fail, consumers have access to the relevant damages to the funeral industry guild UNPROFOR way.   In this way, the benefits of consumers are safeguarded. In addition, Florida and Texas have established a specifically compensation fund to deal with such situations. Taiwan has no corresponding mechanism.

g)   A signing bonus of trust enforced. The law asked 75% of preened funeral agreement fund to deliver to consumers trust in Taiwan region, but most companies have not yet implemented.

h)   Poor representations channels for consumers. Because the preened funeral agreement contract goes in front of the government administration and regulations, lack of sound management and norms. there is no professional consumer protection mechanisms, when the concentration of the first contract to fulfill, it will surely generate a large number of representations, there is no such channel, which will be a heavy blow for consumer confidence, and is not conducive to social stability and industry development.

4. the inspiration of the preened funeral agreement for mainland China

4.1conform to the aging requirements, Shanghai will be able to carry out related activities appropriate
Today, there are more and more common scheduled funeral services in foreign countries: Europe and the United States has more than 60 years of history, SUNLIFE have carried out this business more than 40 years in Japan, the total number of customers 25% of the population to participate in the business in Canada, the promotion and popularization of Taiwan is growing rapidly in recent years. With the aging of the further acceleration of big cities like Shanghai, there is the feasibility to carry out this service. Detailed analysis is as follows:

a)   Comply with the people-oriented, in line with world trends. In line with the thinking of people-oriented with reference to the world's development trend, China has a real basis of the reforms, and experiencing the old-age insurance reform and medical insurance after the reform of socialization can be a gradual improvement of the social security system.

b)   China Life Insurance has great potential, citizens continue to focus on improving the quality of life, and people will be more eyes to life a variety of preparations. People do master their own lives to complete their life choices in their own way, without causing financial burden on their families, while the completion of the funeral rites professional staff. This is also a manifestation of those died who caring for family members

c)   The status in line with aging society in Shanghai. As described by the former Shanghai, China cities with the highest degree of aging, one of the aging rates of 20%, but aging is accelerating. It is predicted that after 2016, Shanghai will reach the peak of population aging, increase old-age security efforts is a major task in Shanghai. At the same time, the process of an aging population in Shanghai has also shown a significant phenomenon of the empty nest. By the end of 2008, Shanghai's pure old family size and the number of older persons living alone, respectively, 863.8 thousand and 188 thousand people, the elderly dependency ratio in 2008 was 30.8% in 2050 is expected to reach 90.1%. The aging of the serious situation prompted greater attention to social matters, after the old life, which also provided the conditions to carry out during his lifetime lease.

d)   Have a certain basis of public opinion, there is potential demand. Shanghai's aging into a contract similar to the product produced during his lifetime consumer groups, old-age dependency coefficient increases was also reasonable and the next generation of people think about how previous generations lived and died reduce the family burden. Longhua Funeral Parlor issue has been investigated in this regard. The results showed that: In the 300 people surveyed, 18% of the people expressed an understanding of his lifetime contract similar products, for carrying out such operations an affirmative attitude toward the more than 90%, 25% of people said that they could purchase, educated, high income people a higher degree of recognition of this service.

4.2 Shanghai needs carried out in the form of an insurance-based

The key of the preened funeral agreement prevalent in Europe and the United States is its high degree of legal, industry management standards, and the matured market. However, in Mainland China because of the funeral industry, industrial background, policies and regulations and many other reasons, it is still difficult to fully use foreign trust model in China. The following reasons:

a)   The preened funeral agreement contains the tomb of the intended function, which contrary to the current "cemetery Interim Measures" which provides "no pre-graves" in our country.

b)   Funeral services and grave of the preened funeral agreement can be transferred. The transfer will have to repeat purchase, so easily lead to speculative trading, which in China is strictly prohibited, and indeed such a thing happened a few years ago.

c)   The preened funeral agreement to pay only according to the provisions of the preferential terms of the amount, the industry will be a certain amount of funds required a certain degree of investment; Chinese funeral business is not yet

possesses such qualifications.

d)   Chinese development of trust lags behind insurance, and its capital management capacity is limited.

2)   Therefore, carrying out such activities to meet several conditions in Shanghai: First, with approximate funeral service functions abroad; second, not in violation of national and financial aspects of the civilian aspects of the relevant laws and regulations; third, consumer, industry, business and social interests capable of integration; last, with realistic operational.

4.3 To carry out should learn from Taiwan's experience at the beginning, legislative and regulatory ahead

Carrying out the preened funeral agreement should be based on the experience of the United States and Taiwan. And this to needs of large national laws, regulations, industry regulation and self-discipline agreement, also need a robust consumer protection mechanism, a professional arbitration body, and then a clear statement. We need to guide relevant enterprises of products and services and provide consumers with the freedom of individual choice. Legislation is modeled on the U.S. idea, but our country due to non-federal system does not require the provinces are located in the law requires only the basic legal provisions of national unity, where the local industry association issued in accordance with local circumstances can be relevant agreements.

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Table 1. the communication ratio and purchase ratio in America and five states of people above the age of 50 (Unit: %)

	Nationwide	Alabama	Pennsylvania	Illinois	Ohio	California
Communication ratio funeral	43	40	38	29	44	42
Communication ratio burial	39	39	36	28	44	42
purchase ratio	32	48	44	34	42	37

Date from: AARP. (2003). Older Americans and Preened Funeral and Burial Arrangements: Findings from a Five-State Telephone Survey [Online] Available: http:// research.aarp.org/ consume/ d16993_state.pdf. Xinyi Liu. (2004). The Study of Preened in America. Chiayi country Taiwan: Nanhua University.

Table 2. the purchase in America and five states of people above the age of 50 (Unit: %)

	Nationwide		Alabama		Pennsylvania		Illinois		Ohio		California	
	50+	Has purchased	50+	Has purchased	50+	Has purchased	50+	Has purchased	50+	Has purchased	50+	Has purchased
Cemetery (tower-bit)	27	86	42	88	40	91	31	90	39	94	26	70
Tombstone (coffin)	18	58	34	71	27	62	18	54	25	60	19	50
Funeral Services	13	40	22	46	19	43	15	43	16	40	14	38
All buyers	9	30	18	38	15	35	11	35	15	35	10	28

Date from: the same as table 1.

Table 3. the way of purchase in America and five states of people above the age of 50 (Unit: %)

	Nationwide	Alabama	Pennsylvania	Illinois	Ohio	California
Funeral	41	37	63	66	60	50
installment	47	42	20	16	22	36
Funeral	60	49	63	67	64	54
Funeral	28	24	21	14	18	26

Date from: the same as table 1.

Table 4. the way of investment in America and five states of people above the age of 50 (Unit: %)

	Nationwide	Alabama	Pennsylvania	Illinois	Ohio	California
Trust Fund (Funeral)	31	15	20	24	27	19
Life Insurance (Funeral)	30	21	17	28	11	14
Other investments (funeral)	14	--	7	5	1	3
Trust Fund (burial)	4	8	10	13	9	12
Life Insurance (burial)	16	16	14	12	7	8
Other investments (burial)	5	--	3	3	3	3

Date from: the same as table 1.

Person-Environment Fit Approach to Intolerance of Inequity

and Free-Riders

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Abstract

This study uses the person-environment fit approach to assess the dissatisfaction one has towards co-workers who fail to carry their own weight, in groups of varying sizes. It is posited in these studies that in large groups where situations are more likely to be inequitable, highly sensitive people are more intolerant of inequity and thus more dissatisfied with their co-workers, compared with less sensitive ones. Sensitivity was measured as a personality trait by the 16PF (Cattell et al., 1987) and group size (obtained from company records) was the objective measure of the work environment. On the basis of data from 257 factory workers in Wales, UK, results of hierarchical multiple regression generally indicated that the relationship between sensitivity and co-worker satisfaction are moderated by group size such that the relationship is positive in small groups and negative in large groups.

Keywords: P-E fit, Objective fit, Equity theory, Sensitivity, Group size, Co-worker satisfaction, Hierarchical multiple regression

1. Introduction

There is an abundance of research that examined the degree of fit between the person and the environment i.e. person-environment fit or P-E fit and how that is associated with satisfaction (Kristof, 1996). However, no studies have attempted to use P-E fit theory to explain why some people are more dissatisfied than others even though they are all placed in the same inequitable situation. Equity theory as proposed by Adams, (1963, 1965) also assumes that all people are equally intolerant of inequity. This research examines the personality trait of sensitivity and aims to show how people who are highly sensitive are more intolerant of inequitable situations compared with less sensitive people. The objective of this study is to examine the interaction between equity sensitivity (person) and group size (work environment) and how that is associated with co-worker satisfaction (dependent variable). For instance, *does the relationship between equity sensitivity and co-worker satisfaction vary with group sizes*? This is the main research question that this study aims to answer.

2. Literature Review

2.1 Person–Environment fit or P-E fit and the argument for using objective measures of the work environment

P-E fit was summarized by Edwards (1996: 292) as follows: "In essence, P-E fit embodies the premise that attitudes, behaviour and other individual level outcomes result not from the person or environment separately, but rather from the relationship between the two (Lewin, 1951; Murray, 1938; Pervin, 1989)." Kristof (2005, 1996), Piasentin and Chapman (2006) and Verquer, Beehr and Wagner (2003) have done a thorough literature review and as such, the bulk of it will not be reproduced here. Rather, what is discussed in this paper are the two main ways of conceptualizing fit – direct and indirect. This eventually leads to the researcher's justification and recommendation that the environment should be measured objectively (in order to get a correspondingly objective measure of fit).

Kristof, Zimmerman and Johnson (2005, 1996) indicated that some researchers have used *direct* measures of fit i.e. by asking people explicitly whether they believe a good fit exists. Posner, Kouzes and Schmidt (1985) used such a method. In their study, managers directly rated how compatible their values were with those of their organizations and how often they had to compromise personal principles to meet organizational expectations. This method is plagued by the consistency bias (i.e., "I think that I fit well, so I must be satisfied with my job") and is therefore not adopted in the current research. Due to this drawback, some researchers have relied on *indirect* measures to assess fit. According to Kristof (1996), *indirect* measures are more reliable because the respondent is asked to rate the individual separately from the environment without being asked to assess the degree of fit. This method (hereinafter called "the moderator approach") does not insist on commensurate measures. The person and the environment can be measured separately (as they should be), using entirely different instruments. The nature and ranges of the two scales can be entirely different. This does not require the respondent to assess fit either directly or indirectly. In fact, it makes it virtually impossible for the respondent to even attempt to assess fit. In this respect, the moderator approach is superior in that the consistency bias inherent in the direct

measurement of fit approach can be totally eliminated. However, it can be argued that the biggest advantage with this method is that objective measures of the environment can be used. Objective measures are measures that do not require any conceptual transformation on the part of the respondent. Hence, it is entirely independent of the person (respondent). Unfortunately, many studies that have used the moderator approach have failed to capitalize on this advantage. For example, in Lee, Ashford and Bobko (1990), control was measured perceptually by the respondent. In Barrick and Mount (1993), autonomy was measured perceptually. Edwards (1991) criticized direct measures primarily because they confound the constructs of the person and environment, thereby preventing the estimation of their independent effects. Yet, amazingly, he did just that (in Edwards, 1996) - environmental supplies and personal values (S-V) fit were measured by asking respondents how much of each task was involved in their job and how much of each task they preferred. This procedure was also employed in another research by Livingstone, Nelson and Barr (1997) who also conducted a study that employed a similar measure of S-V fit in their research.

Although Edwards (1991) pointed out that there is a real need for future research to use objective measures (of either the person or the environment), he has not done so himself and there appears to be none done by others reported even until today. Thus, there is a pressing need for a research to be conducted that uses a truly objective measure i.e. one which is obtained from a source other than the respondent.

2.2 Group Size

Group size, a measure that can be obtained from company records, is one aspect of the work environment that can be measured objectively. Social interactions in groups are frequently characterized by conflicts between personal and collective interests (De Cremer and Leonardelli, 2003). Thus, it is not surprising that research has shown that smaller groups establish and maintain higher levels of communication (Lowry, Roberts, Romano, Cheney and Hightower, 2006) whereas larger groups have reported lower satisfaction (Frank and Anderson, 1971; Shaw, 1981; Slater, 1958; Worthy, 1950). As group size increases, almost every group experiences some degradation in group communication process due to social loafing (Chidambaram and Tung, 2005; Liden, Wayne, Jaworski, and Bennett, 2009). Dissatisfaction with large groups is also reflected by greater absenteeism and personnel turnover (Shaw, 1981). However, small groups are not always better than larger groups. Aiken and Wong (2003) discovered that for idea generation, groups may not be effective until they reach a certain size. However, this apparent controversy over which size is better can be summed up by Worthy (1950) who stated that mere size is unquestionably one of the most important factors in determining the satisfaction of employees - and dissatisfaction can have serious consequences for the company.

2.3 Inequity and the personality trait of sensitivity

Equity theory (Adams, 1963, 1965) proposed that we are concerned with how much we get (outcomes) in proportion to how much we contribute (inputs). According to equity theory, we then compare this ratio with that of another individual to determine whether the situation is equitable. When things are inequitable and the ratios are unequal, we are less satisfied. Huseman, Hatfield and Miles (1987) posited that some individuals are more sensitive to inequity than others. According to Cattell, Eber and Tatsuoka (1992) people whose traits are high on sensitivity crave affection and attention, are also fussy, insecure, anxious, theatrical, easily affected and have been often associated with mental breakdown. Therefore, the extremely sensitive person craves for equity, and it does not matter whether the inputs are greater than the outputs or the other way round – both are undesirable to them. For instance, Irving and Montes (2009) found that exceeded expectations are not always associated with high levels of satisfaction. Accordingly, people whose traits are very high on sensitivity (Cattell et al., 1992) strongly favor equity and also cannot tolerate inequity in either direction, whereas people whose traits are low on sensitivity are more tolerant of inequity. The satisfaction or dissatisfaction that people have concerning equity or inequity can be directed towards their co-workers.

2.4 Development of Hypotheses

Thus, the main objective of this study is to determine whether the relationship between the personality trait of sensitivity and satisfaction is moderated by group size. It has also been explained in the literature review that, highly sensitive people are more dissatisfied with inequity than less sensitive people. Since social loafing is more likely to occur in larger groups, it would be reasonable to propose that large groups tend to be inequitable, whereas small groups tend to be more equitable. This is a proposition of course, which has to be tested. Ensuring workload equity is certainly more difficult as the group gets larger, simply because there are more people to consider. Therefore, it would be reasonable to propose that in large groups, highly sensitive people will be more dissatisfied with their co-workers than less sensitive ones. In small groups the relationship would be opposite because it would be easier that all the group members "carry their own weight" i.e. more equitable. Accordingly, the hypotheses are:

Null Hypothesis HO: The association between sensitivity scores and co-worker satisfaction scores is not moderated by group size.

Alternative Hypothesis H1: The association between sensitivity scores and co-worker satisfaction scores is moderated by group size.

Alternative Hypothesis H2: The association between sensitivity scores and co-worker satisfaction scores is negative for large groups and positive for small groups.

3. Research Methodology

3.1 Sample

Data on two hundred and fifty seven shop-floor workers who worked in groups were collected from a light manufacturing assembly plant in Wales, UK. The entire population of the workers on the shop-floor was three hundred. The majority of the sample was females - there were one hundred and eighty females (70%) and seventy seven males (30%). The average age of the sample was thirty five (see Table 1). Test administration took place over a period of three months in the factory. The collection of data on the employees in the sample took place in sessions at which, from three to fifteen employees were present. Subjects were asked to supply their names to identify their work groups. Every attempt was made to reduce the respondents' worries and anxieties about participating in the research and that this research was mainly for academic purposes. The rationale for choosing to study only one organization was to reduce the variance due to factors which are not measured but must still be controlled (or at least be subjected to some attempt at control). Examples of such factors are differences in company policies, company size, industry sector and geographical location. Adkins Ravlin and Meglino (1996), in their research (which has some similarities with this research), also confined their study to one organization (one-hundred and ninety-one production workers). Thus, it will actually be counter-productive to collect the data from different organizations in this case. Bouchard (1983: 367) stated "Many field studies involve only one organization or subject. While the one case study is generally sterile scientifically.... it need not be. ... A well chosen single case may seriously threaten a traditionally accepted hypothesis."

3.2 Measures

Group size was measured by the number of workers in the work team as shown in the company records. Sensitivity was measured by 6 items in the 16 PF (Cattell et al., 1992) that measures Factor I. One such example is "I think what people say in poetry could be put exactly in plain prose." Scoring instructions are provided by Cattell et al., (1992). The 16 PF remains a popular questionnaire until today and still being used by many researchers (Forero, Pujol, Olivares and Pueyo, 2009; Wang and Xu 2008; Cousineau, Hall Mel, Rosik and Hall, 2007). Co-worker satisfaction was measured by numerical scales adapted from another P-E fit study (Meir, Hadas and Noyfeld, 1997), ranged from 1 to 20 (1 being lowest and 20 being the highest level of satisfaction).

3.3 Operationalising the Moderator

The moderator term is a compound variable formed by multiplying u by the moderator v that is entered in the regression equation (Hair, Anderson Tatham and Black, 1998). However, an important distinction has to be borne in mind - the $u \times v$ interaction "is carried by," rather than "being" the uv product. The product of u and v (uv) only becomes the interaction term after its constituent elements have been partialled out.

$u \times v = uv . u,v.$

One method of doing this is hierarchical multiple regression – the product "uv" is introduced into the regression equation in step 2 only after the separate independent variables of u and v have been introduced in step 1. It is thus the partialled uv results that is interpreted as the "$u \times v$ interaction" (Cohen and Cohen, 1983: 305).

According to Cohen and Cohen (1983), the term moderator variable (f) referred to in psychometric literature refers to an IV that potentially enters into interaction with "predictor" (g) variables while having a negligible correlation with the criterion (Y) itself. However, studies in P-E fit are varied in their approach to which variable should be the predictor and which should be the moderator. In Barrick and Mount (1993) the predictor variable was personality (conscientiousness, extraversion and agreeableness) and the moderator variable was the job environment (job autonomy). In Roberts and Foti (1998), however, the predictor variable was the work environment (work structure) and the moderating variable was personality (self-leadership). If P-E fit theory is correct in propagating the view that both personality and environmental variables are important, then it would appear that the approaches in both studies seem acceptable. Furthermore, from a purely statistical viewpoint, the relationship between two interacting variables is symmetric. "If f moderates the regression of Y on g, then g moderates the regression of Y on f." (Cohen and Cohen, 1983: 323). For the purpose of this study, sensitivity is treated as the predictor and group size as the moderator. However, from a statistical viewpoint, group size could well have been treated as the predictor and sensitivity as a moderator.

3.4 Hierarchical Multiple Regression Analysis (HMR)

Hierarchical multiple regression were conducted to test the significance of the moderating effect of group size. In its simplest form, a hierarchical (sometimes called sequential) analysis involves entering the IVs singly or cumulatively in a prespecified sequence. The R^2 and partial coefficients are examined at each step. In hierarchical regression "the researcher determines the order in which IVs are entered into the equation," taking into account logical or theoretical considerations (Tabachnick and Fidell, 1996: 149). The IVs (u and v) can be entered in block 1 of the analyses using the

command "Enter" in the SPSS program. The interaction term ($u \times v$) can then be introduced into the equation in block two. The term "introduced" rather than "entered" is used because, in block two, the interaction term is accepted into the equation only if, together with the individual component variables, it explains a variance in the dependent variable significantly more (p <.05) than the individual component variables alone. If the interaction term can significantly (p <.05) improve the predictive power of the equation, then it will form part of the regression equation. If it fails to significantly improve the R^2 (squared semi-partial correlation), then the SPSS programme will not include the interaction term from the regression equation. The command used in block 2 was "Stepwise". Results of hierarchical multiple regression analyses are given in section 4.2.

3.5 Procedure for defining small and large groups

The purpose of identifying small and large groups was to compare the correlation coefficients between the variables of sensitivity and satisfaction, in small and large groups. The procedure for defining group size is as follows: The entire sample was split into three equal groups according to group size i.e. small, medium and large. Subsequently, only the large groups were compared with the small groups, the two being at the extremes. The basis of dividing the groups as such was to adopt a compromise between two opposing recommendations. Roberts and Foti (1998) and Adkins, Ravlin and Meglino (1996) used median splits to divide their sample into two equal groups and then proceeded to compare one group with another. This method has the advantage of utilizing the entire sample in the analyses. However, the disadvantage with this method is that it will inevitably include those respondents who are at the borderline i.e. just below or just above the mean of the variable under investigation. As such, it was felt that three groups rather than two should be formed and the analyses restricted to the comparison of the two extreme groups only. For instance, Barrick and Mount (1993) divided their entire sample according to +1, 0 and −1 standard deviation. However, the outcome was that there were rather small sub-samples at both ends of the spectrum (n=59 at the +1 standard deviation above the mean and n=49 at the −1 standard deviation below the mean) with a high 'wastage' (n=149) in the middle of the range. The end result was a compromise and the entire sample was divided into three equal groups. The SPSS commands of "summarize – frequencies – statistics – cut points for 3 equal groups" were used to determine the appropriate maximum values for small groups and minimum values for large groups. The result was that groups comprising between two and seven members were classified as small, between eight to fourteen were considered medium, and between fifteen and twenty were considered large.

4. Results

4.1 Reliability

Cronbach coefficient alpha reliability scores for sensitivity were 0.73. Cronbach coefficient alpha reliability score for co-worker satisfaction was unavailable since it was a one-item measure. Descriptive statistics are given in Table 1. Correlation coefficients between the main variables are given in Table 2. Sensitivity was not significantly correlated with group size, and co-worker satisfaction. Group size was negatively correlated with co-worker satisfaction (-.257, p< .01).

Insert Table 1 here

Insert Table 2 here

4.2 Results of Hierarchical Multiple Regression

Tests of hierarchical multiple regression were used to determine the significance of the interaction term (sensitivity multiplied by the group size) on co-worker satisfaction. The interaction term was successfully accepted into the regression equation after the individual components have been entered into the equation. Full details of the values of R^2 are set out in Table 3. For instance Table 3 Column 3 show the values of R^2 when only the sensitivity variable and the group size were entered into the regression equation (.067). Column 4 of the same table show the R^2 when the sensitivity variable and group size as well as the interaction term were all in the equation (.084). Column 5 of the same table show the change in R^2 as a result of introducing the interaction term (.017). This R^2 multiplied by 100 will give the percentage of the variance that is accounted for by the interaction term after both the individual variables of sensitivity and group size are entered into the equation. Details of the results are given in section 4.2. Thus, results showed support for **H1** in so far as group size was a significant moderator of the sensitivity-satisfaction relationship.

Insert Table 3 here

Insert Table 4 here

In order to find out the direction of the relationships as posited by **H2**, tests of regression and correlation were conducted between sensitivity and satisfaction, when only large groups were selected and when only small groups were selected for analyses. Results showed support for **H2** in that the relationship between sensitivity and co-worker satisfaction were negative in large groups and positive in small groups, as indicated by the values of b (slope of the regression line) and as evident from Figure 1. Having said that however, only the correlation between sensitivity and co-worker satisfaction was

significantly positive in small groups (.273, p < .01: Table 4). Correlation between sensitivity and co-worker satisfaction in large groups was not significant. Table 4 shows the values of b and the correlation coefficients in three scenarios: all cases, large groups only and small groups only. Figure 1 plots out the graphs for large groups, small groups and all cases, for co-worker satisfaction.

Insert Figure 1 here

5. Conclusion

The results of this study lends support to the P-E fit theory in that people who fit in their environment tend to be more satisfied than those who do not. Sensitive people fit in working environments where all the group members "carry their own weight". Workload in large groups tends to be inequitable, whereas workload in small groups tends to be more equitable. This is because social loafing is more likely to occur in larger as opposed to smaller groups. Results seem to suggest that, people whose traits are high on sensitivity have a tendency to be less satisfied with their share of the workload if they are made to work in large groups. Highly sensitive people are more satisfied with their share of the workload if they work in small groups where it is easier to ensure that everyone is doing their fair share of the work. The results of this study also support the criticisms of the equity theory in that not all people are equally affected by inequity (Huseman et al., 1985). Results suggest that highly sensitive people are more dissatisfied by inequity (as in large groups) compared with less sensitive ones. Highly sensitive people are also more satisfied in an equitable situation (as in small groups) compared with less sensitive ones.

From the managerial perspective, results seem to suggest that sensitive people should be made to work in smaller groups where they will be more satisfied with their share of the workload, and not in larger groups where they will be less satisfied. However, to be able to do so, management would have to find out which workers are more sensitive and which are less sensitive. This would necessitate personality tests to be conducted on all the workers, a decision which may or may not be popular with the management or the workers. From the person-environment perspective, managers have two choices. Change the person or change the environment.   Managers could either select only those people whose traits are low on sensitivity, or they could limit the group sizes so as not to exceed ten in number. The second alternative seems simpler, and this action would probably reduce the occurrence of social loafing hence resulting in increased satisfaction of the average worker. In addition, management can make individual contributions more visible.

6. Limitations

Since this study is cross sectional, a conclusion cannot be drawn about the direction of causality in these findings. However, it is reasonable to hold that the interaction between sensitivity and group size was for the most part responsible for changes in satisfaction rather than the reverse as the view taken in this research is that personality traits are relatively stable over long periods of time. Another weakness is that the moderator analyses were conducted in a single company. However, this can be argued to be a strength as many variables such as, company policies, company size, industry sector and geographical location are controlled because the study was conducted in the same factory. Such variables, if uncontrolled, may have varying effects on the moderator, the independent and dependent variables. Furthermore, the findings of this study can easily benefit from replication studies conducted in other companies with the same characteristics.

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Table 1. Descriptives

	Means	Standard deviation
Sensitivity	5.54	1.92
Co-worker satisfaction	13.52	3.96
Age	35.57	10.66

N= 257

Table 2. Table of correlation coefficients

	Sensitivity	Group Size	Satisfaction with Co-workers
Sensitivity	1	.775	.689
Group size	.018	1	.000
Satisfaction with co-worker	.025	-.257**	1

** $p < .01$,   N = 257

Above diagonal = significance

Below diagonal = Pearson correlation coefficients

Table 3. Tests of Hierarchical Multiple Regression: sensitivity (IV), group size (IV), sensitivity x group size (MV) and co-worker satisfaction (DV)

Person Variable (IV)	*Environment Variable (IV)*	*Interaction Term or Moderating Variable*	*Dependent Variable*	Hierarchical Multiple Regression		
				R^2 with sensitivity and co-worker satisfaction but excluding interaction term	R^2 including interaction term	Δ R^2
Sensitivity	A. Group size	B. Sensitivity multiplied by group size	C. Co-worker Satisfaction	.067	.084	.017

Table 4. Values of b and the bivariate correlation coefficients between sensitivity and co-worker satisfaction for all cases, large and small groups

| Variables	Statistical Analysis	All Cases (N = 257)	Large Groups (N = 90)	Small Groups (N = 97)
Sensitivity & co-worker satisfaction	Values of b	.149	-.233	.589
	Correlation coefficients	.075	-.126	.273**

** $p < .01$, N = 257
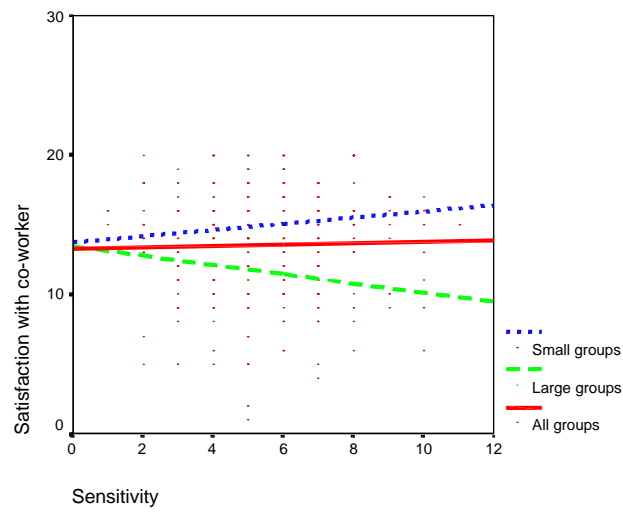
Figure 1. Interactional Effects of Group Size on the Relationship between Sensitivity and Co-worker Satisfaction

Consumer's Trust in the Brand: Can it Be Built through Brand Reputation, Brand Competence and Brand Predictability

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Abstract

The study evaluated the relationship of Brand Reputation, Brand Competence and Brand Predictability in the context of Consumer's Trust in the Brand. The data was collected through a self reported questionnaire administered to the respondents. Results were evaluated through Correlation and Regression Analysis, all models are significant at 5% level. The results show that consumer's trust in the brand increased between 30 percent and 60 percent due to Brand Characteristic. Results indicate that Brand Reputation, Brand Predictability and Brand Competency are the factors which affect consumer's trust on brand. After the analysis it is proved that brand reputation, predictability and competency has positive impact on trust. Consumer trust in brand is build up when; consumer uses that brand and gathers data about brand reputation, its predictability and competencies. When brand reputation is good, it meets the predictability of customer and it has competency to satisfy the customer's needs, it helps to develops trust of customer on brand. By using effective advertising techniques, brands must build their image which in turn would build customer trust and credibility. Brands must try to build their competencies so that customer needs can be satisfied

Keywords: Brand Reputation, Brand Competence, Brand Predictability, Consumer's Trust in the Brand

1. Introduction

Brand is defined by different researchers and authors in different ways. Aaker & Keller (1990) defined Brand as a name, logo, trademark, and symbol. A seller is granted exclusive right to use brand. Basically it is different from patents and copyright (other assets), which have expiry date (Kotler and Armstrong, 2004). Owners sell their brand in market at

their own will and cost on competitive basis. According to Einwiller (2001) a brand creates difference with other generic products.

Brand is considered as a reflection of the spirit and soul of an organization. This proclamation proposes that brand is not representation of a company's product; it is name, logo, trademark, and symbol of firm that distinguishes it and that is where the core of brand loyalty takes its position. Brand show loyalty of end users. After continuous usage of brand, consumers feel it as part of them (Aaker, 1991).

Trust means confidence on exchange partner's reliability and integrity (Morgan and Hunt 1994). Trust shows consumer commitment and satisfaction with particular brand. An organization uses trust in brand as a risk-reduction mechanism (Doney and Cannon 1997). Trust can also be considered as goodwill and willingness that enables the consumer to take risk. Goodwill is developed on the bases of past experiences. Trust is an expectation, which may cause a positive outcome, despite the possibility that it may cause a negative outcome (Worchel, 1979). So expectation of groups or teams in an event is called trust (Deutsch 1958). Trust is not a mere predictability but confidence in the face of risk (Lewis and Weigert (1985). Trust is a psychosomatic state comprising the intention to recognize susceptibility based upon constructive prospect of the intentions or behavior of another person (Rousseau et. al., 1998). For making a strong relationship between buyer and seller, creation of trust is a very important factor in business environment. Trust is a feeling about satisfaction because of its ability to moderate risk in the buying process (Anderson and Narus, 1990; Dawyer, Schurr and Oh, 1987).

According to O'Shaughnessy (1992) faithfulness is everlasting wish, a readiness to do something with no computation of instant expenses and profit. Hence, faithfulness to a brand engages trust in it. In business marketing, the idea of faith is sound to develop (e.g. Ganesan, 1994; Doney and Cannon, 1997) and a great deal of endeavor has been used up in discovering methods to construct and keep it. In that background, trust is constructed on the basis of person-to-person dealings. Trust in a product is different from interpersonal trust because a brand is a sign. Unlike a salesperson, this sign is not capable to react to the customer. To create loyalty in today's marketplace, marketers have to hold what is becoming subsequent nature to business marketers (Donath, 1999) and focus on structuring and sustaining trust in the customer-brand relationship. Unfortunately, the idea of trust in consumer marketing is largely unexplored.

This study is conducted to evaluate the constructive effects of brand characteristics on consumer's trust in the brand. This study is focused on the cities of Pakistan. As research has been done to find out what consumers think while buying a certain brand and what other factors influence the opinion about the same brand. This study helps in checking the trust of consumers in brand.

In this paper, factors related to brand reputation, brand competence and brand predictability are explored. Effects of these independent variables are examined on trust in brand. Brand attributes are main aspect which can improve consumer satisfaction level. Consumer wants a brand at a lower price and with attributes which can satisfy his/her needs. When consumer uses a brand and his/her need is not satisfied, then he/she may not use same brand again. Consumers also share their brand usage experience with others. This kind of data sharing can also create new consumers who may also try to use that brand. Brand characteristics are main aspects of brand which can satisfy needs of customers. Business firms must try to build their brand image through customer's needs satisfaction. Customer's needs satisfying ability of brand is also capable of building consumer trust in brand. When brands fail to satisfy customer needs they may switch to other brands.

2. Consumer's Trust in the Brand

Trust means expectation from others on specific task, and expectations vary between high and low rating scale. Variation of expectations is called risk. Trust is dependency on other parties at the level of risk with their own willingness. Trust is built up on the bases of past experiences. Trust is based on ending results. A positive ending result enhances trust and negative results on the other hand will cause the trust to drop (Deutsch, 1958; Worchel, 1979). Trust plays a vital role for developing and maintaining brand loyalty in both situations, i.e. consumer-to-business and business-to-business buying situation. To maintain a market share and price elasticity, trust influence toward changing behavioral and attitudinal loyalty (Chaudhuri, and Holbrook, 2001). Trust is a belief which is focused on specific appropriate boundaries and limitations. Lewis and Weigert (1985) say that trust is not mere certainty but assurance in the expression of risk. Many other researchers have followed this idea (Deustch, 1960; Schlenker et al., 1973; Boon and Holmes, 1991). Boon and Holmes (1991) defined trust as a condition linking certain optimistic opportunity about another's intention with respect to oneself in risky state of affairs. Consumer's trust in brand is a variable that generates customers' commitment, particularly high involvement situation, in which its effect is strong in assessment as a whole contentment (Moorman, Zaltman, and Deshpande, 1992; Morgan, and Hunt, 1994; Delgado and Munuera 2001).

In business marketing trust plays important role. Apart from change of aggressive modifications, Industrial-marketing organizations adopt new methods to be competitive. Another method is by maintaining good links with the consumers. It is an easy and less expensive tactic because in the business market, small numbers of consumers buy large number of

products. Different forms of trade in the market are distinguished by huge area of trust (Dwyer, Schurr and Oh, 1987; Morgan and Hunt, 1994). Owing to this, emphasizing is laid on the strategic outcomes of the relationship (Ganesan, 1994); thus enhancing competitiveness and reducing transaction expenses (Noordewier, John and Nevin, 1990).

The business and marketing literature reveals different ways to build trust. Trust is emphasized either as a part of linkage quality (Dwyer and Oh, 1987; Crosby, Evans, and Cowles, 1990; Anderson, Lodish, and Weitz, 1987), or as a determinant of relationship quality (Anderson and Narus, 1984, 1990; Parasuraman, Ziethaml, and Berry, 1985; Anderson and Weitz, (1990). Doney and Cannon (1997) presented apparent trustworthiness and kindness of the object as areas of trust. Apparent trustworthiness centers on the objective trustworthiness of the trade partner, the anticipation that the partner's word or paper declaration can be trusted. Kindness is the level to which one partner is actually interested in the other's benefit and forced to seek cooperative benefit. Evolution of trust is through a procedure of computation, the expenses and benefits of both sides leaving or being in the relationship.

Previously, trades in customer-product business faced larger issues as large amount of customers were faithful to transaction only (Donath, 1999). To triumph customer faithfulness and for imitating achievement of business, marketers started to hold the thought of making links with consumers to get their faith (Bennet, 1996). Idea of faith in the marketing text normally lacks. In the buyer market, there are number of unidentified buyers, which make it difficult to link with customers. The trade name becomes an alternate for personal link amongst the seller and buyer.

3. Brand Characteristics

Brand constituent, brand reputation and brand competence assist for developing consumer trust in brand. Before purchasing a brand, consumers judge brand through these characteristics (Lau and Lee, 1999). The brand's properties have an important function in shaping consumer trust. Many buyers see other buyers to evaluate brand capabilities in market and also evaluate the benefits which they can get from those brands. Buyers develop trust in brand on the foundation of the market worth of brands (Zucker, 1986), certainty (Remple Holmes, and Zanna, 1985) and capability (Andaleep and Anwar, 1996).

3.1 Brand Reputation

"Reputation, reputation, reputation, O! I have lost my reputation. I have lost the immortal part of my self and what remains is bestial" (Shakespeare's Quotation)

High demand of brand indicates high reputation in the mind of consumers. A well thought-of brand is a powerful asset. Advertising channels, public relations elements and customers should be encouraged to spread positive word-of-mouth. As a Chinese quotation goes, "Good news does not become known, but bad news spreads far and wide". Good reputation could lead to positive expectations and bad reputation could lead to negative image of the brand (Creed and Miles, 1996). For complete understanding of brand trust, a brand must be examined, assessed and checked as to how much it is related with brand loyalty (Lau and Lee, 1999). Consumer holds brands as a part of product with value addition and that brand creates difference from other products. Basically consumers rely on brand with a level of risk (Moorman, Zaltman, and Deshpande, 1992). Reputation means trustworthiness, integrity, and honesty. It can be seen from past experience of third party's trustworthiness, integrity, and honesty. Brand reputation can be judged from consumer opinion, comments, estimation and beliefs, if people are suggesting the usage of a brand then it is considered as a sign of good reputation. A brand's reputation refers to the attitude of consumers that the brand is good and reliable. Brand reputation can be developed through advertising and public relations, and it enhances its quality.

A brand's standing refers to the concept of other buyers about brand worth in the market. Reputation and standing of brand can be created by effective marketing and making links with customers. Creed and Miles (1996) established that brand standing in market creates optimistic outcomes, which result in the expansion of reciprocity between both entities. If a buyer assumes that other buyers also have same opinion about brand as worthy of praise, he/she also trusts that brand and make buying decision. But if that product or brand does not meet customer needs then he/she may not buy it. On the other hand, if brand name does not have a good value, customer is likely to be more doubtful. As a consequence of sensitive alertness, they might not trust the brand. As a result, the following hypothesis is developed:

H_1 Brand Reputation is positively related to the Consumer's Trust in the Brand

3.2 Brand Competence

A competent brand is one that has the ability to crack a customer's problem and to meet the need (Butler and Cantrell, 1984; Butler, 1991). Every organization wants to establish their competence in a few key areas, and deal with their brand within these realms. It is a duty of every marketer to find out exact demands of their customers which are related with their product. Organization should not create doubt in the mind of consumer about brand competence. Consumers must be persuaded regarding the brand competence. Marketers should make well-judged use of key opinion leaders, who are viewed as authorities in specific areas, and to present them a persona of the brand. Highly qualified engineers for technical equipment and well-known physicians for pharmaceutical products are examples of key opinion leaders.

Competent brand includes crucial elements for solving consumers' problem. Utilization of brand is only one way to find out brand competency (Lau, and Lee, 1999; Christou, 2004). Consumers can find out a brand's competency through direct usage or word-of mouth.

Good brands are that which are able to satisfy the needs of a customer and its attributes must be compatible with customer's needs. Brand ability is the properties of brand which are perceived by customer as value. Butler and Cantrell (1984), Butler (1991), Deutsch (1960), Cook and Wall (1980), and Sitkin and Roth (1998) measured it as a property to satisfy the needs of customer.

A buyer can only know about brand attributes after using it and after listening from others. When customer perceives that brand can satisfy his needs, only then he /she can be able to involved in buying decision. The literature suggests creating the following hypothesis.

H2 Brand Competency is positively related to the Consumer's Trust in the Brand.

3.3 Brand Predictability

Predictability is ability of one buyer which is perceived by the other buyer (Doney and Cannon, 1997). It is a brand which allows customer to perceive brand characteristics, with trust that brand will satisfy his/her needs. Predictability is also dependent on product attributes and brand worth. When a consumer predicts about a brand while being used by other consumer, then this shows that he predicts about that product.

Shapiro, Sheppard, and Cheraskin, (1992) recognized three types of trust in service: deterrence-based faith, knowledge-based trust, and identification-based trust. Of these, knowledge-based trust, stranded in behavioral certainty survives while one party has sufficient knowledge concerning another to recognize and forecast its likely performance that it will perform trustworthily (Linskold, 1978; Rotter, 1971). Kelly and Stahelski (1970) argued that certainty improves faith, even if the additional party is surprisingly not trustworthy, because the behavior in which faith is dishonored can be forecasted. A brand's obviousness enhances assurance because the customer knows that nothing unforeseen may occur when it is used. As such, product predictability enhances trust in a brand because certainty builds optimistic outlook (Kasperson, Golding, and Tuler, 1992). Based on this relationship the following hypotheses is derived

H3 Brand predictability is positively related to the Consumer's trust in the brand.

4. Method

4.1 Sample

Target population was consumers of Rawalpindi and Islamabad, Pakistan, who were purchasing any consumer goods. Six hundred and forty questionnaires were administered to different centers, shopping malls, markets and markaz. Of those, a total of 328 questionnaires were received back. All consumers answered with special reference to non-durable consumer brand items. It became point of interest for the consumers as the questionnaire asked about favorite brand and product. A number of studies have been conducted on brand reputation, brand competence, brand predictability and consumer's trust in brand with the Lau and Lee (1999), Remple et al., (1985); Lazelere and Huson's(1980) instruments; but their reliability under the Pakistani environment is to be judged.

4.2 Instrument and Measures

Brand Reputation's scale by Lau and Lee (1999) with little modification is used to for measuring the response. It consists of six items that measures the respondent's point of view regarding the brand goodness, reliability and what other people have said about the brand goodness and reliability. Five point likert scale was used as 1 for strongly disagree and 5 for strongly agree. Three items were used as reverse coding. Lau and Lee (1999) scale proved its reliability of 0.87 whereas this research shows 0.78 reliability factors.

To measure Brand Competence the scale by Lau and Lee (1999) with little modification was adopted. To operationalise the brand competence, it is apt to measure brand perception regarding its competence. Analysis of brand competence in relation to other brands competency was a need to be done for comparison. This measurement process would be a genuine instrument to ascertain its success. Five point likert scale was used as 1 for strongly disagree and 5 for strongly agree. One item was used as reverse coding. Lau and Lee (1999) scale for brand competence proved its reliability of 0.94 whereas this research shows reliability of 0.82.

Three constructs were adapted form Remple, Holmes, and Zanna, (1985), and three from Lau and Lee (1999) to measure brand predictability. These six items show brand consistency in quality and performance. Five point likert scale was used as 1 for strongly disagree and 5 for strongly agree. Two items were reverse coded. The brand predictability scale proved its reliability of 0.91 whereas this research shows reliability of 0.86.

The operationalisation of Consumer's Trust in the Brand includes searching out feedback from the consumer. The established trust factor is likely to yield its outcome as it is perceived. For measuring trust in brand, two items are

adapted from Lazelere and Huson's (1980), while three items of trust were adapted from the Remple, Holmes, and Zanna, (1985). Five point likert scale was used as 1 for strongly disagree and 5 for strongly agree. Two items were used as reverse coding. The research shows reliability of 0.81 for this scale.

4.3 Procedure

Questionnaires were distributed randomly to consumer in capital city of Islamabad and Rawalpindi, Pakistan. Questionnaire contained two parts, first part related to demographic profiles and second part consisted of brand reputation, brand competence, brand predictability and consumer trust in the brand. To reduce the bias in response, several items were in reverse coding. Pakistan's official language is English, therefore, the questionnaire was not translated in native language but where necessary, oral translation was made in local easy languages.

5. Results and Discussion

The response rate of 50 percent was noticed as 328 questionnaires completed in all respect were received. There was no statistical difference between gender, age and qualification. The data recording the age, gender and qualification of the respondents shows that 73 percent of respondent's age was 20 to 30, only 20 percent were female and 60 percent respondent's education was Intermediate. People highlighted 98 brands during the survey.

Table No-1 shows means standard deviations and cronbach's of the data. The results reveal that Brand Reputation has the largest mean 3.3943 while Brand Predictability has the lowest mean of 3.2403. Standard deviation ranged from 0.56681 to 0.7539. The international consistency method was used to examine the reliability of each variable.

Table No-2 reveals the Pearson correlation of Brand Reputation, Brand Predictability, Brand Competence and Consumer's Trust in the Brand and their significance. Evidence shows that each variable is correlated to the other and their relation is significant at 95% confidence level (p<0.05). Individual basis correlation coefficient of Brand Reputation with relations to Brand Predictability, Brand Competence and Consumer's Trust in Brand are positively associated at .305, .413 and .238 respectively and their relation is significant at 95 percent. Coefficient of Correlation of Brand Predictability with relations to Brand Competence, Consumer's Trust in the Brand is .288 and .287 respectively and their relation is significant at 95 percent. Coefficient of Correlation of Brand Competence with Consumer's Trust in the Brand is positively at .524 and their relation is significant at 95 percent. This study shows that all relationships between variables are positive.

Table No-3 shows the regression analysis of Brand Reputation and Consumer's Trust in Brand. R Squares is 0.57 and F-Value is 19.549. The 0verall model is significant at 95%. R Square shows the strong relationship between each variable and beta coefficient is at .296 which shows Consumer' Trust in the Brand is increased 30 percent due to Brand Reputation: t-value is 4.4421 which show relevant importance of brand reputation for consumer's trust in the brand. Overall model shows that consumer trust has significant impact on brand and this indicates that trust can be achieved if brand fulfills needs of customers.

Table No-4 shows the regression analysis of Brand Competence and Consumer's Trust in Brand. R Squares is 0.275 and F-Value is 123.549. Overall model is significant at 95%. R Square shows the strong relationship between each variable and beta coefficient is .60 which shows consumer' Trust in brand increases 60 percent due to Brand Competence and t-value of 11.115 shows relevant importance of brand competence for consumer's trust in the brand. Brand competence is also important feature which develop consumer trust in brand. Brand must have certain characteristics which can satisfy the needs of consumer. Brand must have characteristics which are same that are required to meet consumer needs. Brands which don't have brand characteristics would not be able to meet consumer need and that brand may not succeed in the marketplace.

Table No-5 shows the regression analysis of Brand Predictability and Consumer's Trust in Brand. R Squares is 0.083 and F-Value is 29.371 and overall model is significant at 95%. R Square shows the positive relationship between each variable and beta coefficient is .324 which shows consumer's Trust in brand increases by 32 percent due to Brand Predictability: t-value is 4.4421 which shows relevant importance of brand reputation for consumer's trust in the brand.

Brand predictability also affects consumer trust. When consumer has predictions about any brand and after brand usage those predictions come true, that affects the trust of consumer on brand. Predictability is created when consumer listens about brand from other users and on the basis of that if consumer has same experience. Customer's trust can be developed when brand satisfy his needs.

6. Conclusion and Recommendations

This study provides interesting findings through correlation and regression analysis. The study predicts positive impact of Brand Reputation, Brand Competence and Brand Predictability on Consumer's Trust in the Brand. The study model is significant at 95% of confidence level (p<0.05). Furthermore Consumer's Trust in Brand increases between 30 percent and 60 percent due to Brand Characteristics (Brand Reputation, Brand Competence and Brand Predictability).

Regression and correlation analysis shows that Brand Reputation has positive relationship with Consumer's Trust in the Brand and it is significant at 95 percent confidence level. R Square is .57, coefficient Beta is 30 percent and Pearson Correlation is 24 Percent. So we accept H1 (Brand Reputation is positively related to the Consumer's Trust in the Brand). Second independent variable, Brand Competence has positive impact on Consumer's Trust in the Brand and it is significant at 95 percent confidence level. R Square is 0.28, coefficient Beta is 60 percent and Pearson Correlation is 52 Percent. So we accept H2 (Brand Competent is positively related to the Consumer's Trust in the Brand). Second independent variable, Brand Predictability, has positive impact on Consumer's Trust in the Brand and it is significant at 95 percent confidence level. R Square is 0.083, coefficient Beta is 32 percent and Pearson Correlation is 29 Percent. So we accept H3 (Brand Predictable is positively related to the Consumer's Trust in the Brand). The results of this research study are almost consistent with the study conducted by Lau and Lee (1999) that there is relationship of Brand Characteristic (Brand Reputation, Brand Competence and Brand Predictability) with Consumer's Trust in the Brand.

Brand Reputation, Predictability and its Competency are the factors which affect consumer trust in brand. The analysis of the study proves that brand reputation, predictability and its competency has positive impact on trust which is developed when consumer uses that brand and gathers data about brand reputation, its predictability and competencies. When brand reputation is good, it meets the predictability of customer and it has competency to satisfy the needs of customer, and thus it develops trust of customer in brand.

6.1 Further Recommendations

Brands must build customer trust to improve their image in market. Brands must hold good quality to satisfy customer's need. By using effective advertising techniques, brands must build their image which in turn would build customer trust and credibility. Brands must try to build their competencies so that customer needs can be satisfied

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Table 1. Descriptive Analysis of Brand Characteristic and Consumer's Trust in the Brand

Variable	Items	N	Mean	Std. Deviation	Cronbach's Alpha
Brand Reputation	6	328	3.3943	.56681	.78
Brand Competence	6	328	3.5691	.61591	.82
Brand Predictability	6	328	3.2403	.62638	.86
Consumer's Trust in Brand	6	328	3.3701	.70539	.81

Table 2. Pearson Correlation of Brand Characteristic and Consumer's Trust in the Brand

Variables	Brand Reputation	Brand Predictability	Brand Competence	Consumer's Trust in Brand
Brand Reputation				
Pearson Correlation	1			
Sig. (2-tailed)				
N	328			
Brand Predictability				
Pearson Correlation	.305**	1		
Sig. (2-tailed)	.000			
N	328	328		
Brand Competence				
Pearson Correlation	.413**	.288**	1	
Sig. (2-tailed)	.000	.000		
N	328	328	328	
Consumer's Trust in Brand				
Pearson Correlation	.238**	.287**	.524**	1
Sig. (2-tailed)	.000	.000	.000	
N	328	328	328	328

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3. Beta Coefficients, Standard Error in parenthesis, t-Values in Brackets, and P-Values in italics

Dependent Variable	Constant	Brand Reputation	R Squares	F-Statistic
Consumer's Trust in Brand	2.365	0.296	0.57	19.549
	(0.230)	(0.67)		
	[10.267]	[4.421]		
	0.000	*0.000*		*0.000*

Table 4. Beta Coefficients, Standard Error in parenthesis, t-Values in Brackets, and P-Values in italics

Dependent Variable	Constant	Brand Competence	R Squares	F-Statistic
Consumer's Trust in Brand	1.227	.600	0.275	123.549
	(0.196)	(0.054)		
	[6.273]	[11.115]		
	0.000	*0.000*		*0.000*

Table 5. Beta Coefficients, Standard Error in parenthesis, t-Values in Brackets, and P-Values in italics

Dependent Variable	Constant	Brand Predictability	R Squares	F-Statistic
Consumer's Trust in Brand	2.321	0.324	0.083	29.371
	(0.197)	(0.060)		
	[11.774]	[5.419]		
	0.000	*0.000*		*0.000*

A Literature Review on the Relationship between Foreign Direct Investment and Economic Growth

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Abstract

During the last decades, the relation between FDI and economic growth has been extensively discussed in the economic literature. Theories and existing literature provide conflicting results concerning this relationship. On one hand, some scholars argue that foreign direct investment could stimulate technological change through the adoption of foreign technology and know-how and technological spillovers, thus boosting host country economies. On the other hand, other pessimists believe that FDI may bring about crowding out effect on domestic investment, external vulnerability and dependence, destructive competition of foreign affiliates with domestic firms and "market-stealing effect" as a result of poor absorptive capacity. This paper sums up the literature as well as empirical studies on the relationship between foreign direct investment and economic growth, trying to arrive at a meaning revelation eventually.

Keywords: Foreign direct investment, Economic growth, Technological spillovers

In literature, there exists an agreed framework definition of foreign direct investment (FDI). That is, foreign direct investment is an investment made to acquire a lasting management interest (normally 10% of voting stock) in a business enterprise operating in a country other than that of the investor defined according to residency (World Bank, 1996). FDI can be divided into two forms: "greenfield" investment, which is also called "mortar and brick" investment, as well as merger and acquisition (M&A), which entails the acquisition of existing interest rather than new investment.

In corporate governance, a direct investment relationship is established when at least 10% of the ordinary shares or voting stock is owned. Ownership of less than 10% is regarded as portfolio investment. Besides greenfield investment and M&A, reinvesting earnings and loans and similar capital transfer between parent companies and their subsidiaries also belong to foreign direct investment. Countries could be both host to FDI projects in their own country and a participant in investment projects in other counties. A country's inward FDI position is made up of the hosted FDI projects, while outward FDI comprises those investment projects owned abroad.

An important aspect of globalization during the last few years has been the impressive surge of FDI by multinational corporations, which has become the primary source of external financing for countries all over the world. During the past few years, the role of foreign direct investment (FDI) has become more and more important for developing countries and less developed countries. Indeed, it increased rapidly during the late 1980s and the 1990s. According to the UNCTAD database, FDI flows to less developed countries have been multiplied by 7 between 1991 and 2000, while the stock of FDI has been multiplied by 5. The inward FDI flows to less developed countries considered as a whole increased again by 52% between 2001 and 2005, as figure 1 has pointed out. Such a high growth is unprecedented.

According to the World Bank (2007), global FDI flows reached a record of 1.1$ trillion in 2006 and there has been a continuing rise in FDI inflows to developing countries. In recent years, FDI outflows from large developing countries are also on the rise. For example, since 2004 FDI flows from India into the United Kingdom have exceeded flows from the United Kingdom to India. This evolution and changing patterns in world FDI flows has been synchronous with a shift in emphasis among policymakers in developing countries to attract more FDI (through tax incentives and subsidies to foreign investors). Nowadays, the total FDI stocks represent more than 20% of the global GDP. The rapid growth of FDI and its overall magnitude had sparked numerous studies dealing with the relationship between FDI and economic growth. While the explosion of FDI is unmistakable, the growth effects of FDI still remain controversial, both theoretically and empirically.

During the last decades, the relation between FDI and economic growth has been extensively discussed in the economic literature. The positions range from an unreserved optimistic view (based on the neo-classical theory or, more recently, on the new theory of economic growth) to a systematic pessimism (namely among 'radical' economists). There is a widespread belief among researchers and policymakers that FDI boosts growth for host countries through different channels. They increase the capital stock and employment; stimulate technological change through the adoption of foreign technology and know-how and technological spillovers, which can happen via licensing agreements, imitation,

employee training, and the introduction of new processes, and products by foreign firms. As it eases the transfer of technology, FDI is expected to increase and improve the existing stock of knowledge in the recipient economy through labor training, skill acquisition and diffusion. It contributes to introduce new management practices and a more efficient organization of the production process. As a consequence, FDI can play an important role in modernizing a national economy and promoting economic development.

Starting with the pioneering work of Caves (1974), his country case studies and industry level cross sectional studies led him to conclude that there exists a positive correlation between the productivity of a multinational enterprise (MNE) and average value added per worker of the domestic firms within the same sector. Later, in 1996, Caves has observed several positive effects of FDI that has brought about increasing efforts to attract more of it. Among these were productivity gains, technology transfers, the introduction of new processes, managerial skills and know-how in the domestic market, employee training, international production networks and access to markets. Findlay (1978) has postulated that FDI, through a "contagion" effect, increased the rate of technical progress in host country from the more advanced technology, management practices, etc., used by foreign firms. In addition, FDI may contribute to economic growth where the transfer of technology raised the stock of knowledge in host country through labor training and skill acquisition, new management practices and organizational arrangements (De Mello, 1999). Borensztein et al. (1998) pointed out that FDI, an important vehicle for the transfer of technology, has contributed to growth in larger measure than domestic investment. According to Rappaport (2000), FDI may improve the productivity not only of the firms receiving investments, but also of all firms of the host countries as a consequence of technological spillovers. These spillover effects were generated from both intra-industry (or horizontal, i.e.: within the same sector) externalities and inter-industries (or vertical) externalities through forward or/and backward linkages (Javorcik, 2004; Alfaro and Rodriguez-Clare, 2004). De Gregorio (2003) has noted that technologies and knowledge that are not readily available to host country investors may be brought to them along with FDI, and in this way led to productivity growth throughout the economies. FDI may also bring in expertise that the country does not possess, and foreign investors may have access to global markets. In fact, through empirical studies he found that increasing aggregate investment by 1 percentage point of GDP increased economic growth of Latin American countries by 0.1% to 0.2% a year, but increasing FDI by the same amount increased growth by approximately 0.6% a year during the period 1950–1985, thus indicating that FDI is three times more efficient than domestic investment. Futhermore, the advocator of FDI have argued that FDI could help promote economic growth through technology diffusion and human capital development (Van Loo 1977; Borensztein, De Gregorio and Lee1998; de Mello 1999; Shan 2002a; Liu, Burridge and Sinclair 2002; and Kim and Seo 2003). When multinational corporations have vertical inter-firm linkages with domestic firms or have subregional clusters of inter-related activities, through formal or informal links or social contacts among the employees, multinational corporations could diffuse technology and management know-how to local firms. Moreover, as Noorzoy put forward in 1979, FDI could help host countries overcome capital shortage and complement domestic investment when FDI flowed to high risk areas or new industries where domestic investment is limited. When FDI is attracted for resource industries, for instance petroleum, domestic investment in related industries may be stimulated. Also, FDI may boost exports for the host countries. Empirical studies supporting these arguments include Sun (1998) and Shan (2002). Using the conventional regression model and panel data, Sun (1998) has found out a high and significantly positive correlation between FDI and domestic investment in China. Shan (2002) have used a VAR model to examine the inter-relationships between FDI, industrial output growth and other variables in China. He has concluded that FDI has a dramatically beneficial impact on the Chinese economy when the ratio of FDI to industrial output rose. Nevertheless, some macroeconomic studies, using aggregate FDI flows for a broad cross section of countries, generally have suggest a positive role of FDI in generating economic growth under particular environments. For instance, Blomstrom, Lipsey, and Zejan (1994) believed that FDI had a positive growth effect when the country was sufficiently wealthy, that is, FDI could exert a positive effect on economic growth, but that there seemed to be a threshold level of income above which FDI had positive effect on economic growth and below which it did not. This was because only those countries that had reached a certain income level could absorb new technologies and thus benefit from technology diffusion, reaping the extra advantages that FDI could offer. Besides, Alfaro et al. (2003) has argued that FDI promoted economic growth in economies with sufficiently developed financial markets, while Balasubramanyam, Salisu, and Sapsford (1996) have stressed that trade openness was crucial for obtaining the growth effects of FDI.

However, the positive effects of FDI on economic growth have not won unanimous support recently. This pessimist view, having risen during the 50s and the 60s, is still now defended by several recent firm or industry level studies which emphasize poor absorptive capacity, crowding out effect on domestic investment, external vulnerability and dependence, a possible deterioration of the balance of payments as profits are repatriated and negative, destructive competition of foreign affiliates with domestic firms and "market-stealing effect".

In an influential study, Aitken and Harrison (1999) did not found any evidence of a beneficial spillover effect from foreign firms and domestic ones in Venezuela over the 1979-1989 period. Similarly, Haddad and Harrison (1993) and Mansfield and Romeo (1980) found no positive effect of FDI on the rate of economic growth in developing countries,

namely in Morocco. As De Mello (1999) has pointed out: "whether FDI can be deemed to be a catalyst for output growth, capital accumulation, and technological progress seems to be a less controversial hypothesis in theory than in practice" (1999, p. 148). Moreover, Lipsey (2002), after surveying the macro empirical research, claimed that a consistent relation between the size of inward FDI stocks or flows relative to GDP and growth did not exist. He further argued that there was need for more consideration of the different circumstances that obstructed or promoted spillovers. Later, Lipsey and Sjoholm summarized that evidence of positive spillovers of FDI had been found by researchers in some countries and some industries, though, country-specific and industry-specific factors seemed so crucial that these results did not support the overall conclusion that FDI brought about substantial spillover effects for the entire economy. In addition, the industrial organization theory brought forth by Hymer (1960) and Caves (1971) has stipulated that FDI is an aggressive global strategy by MNEs to advance monopoly power over and above indigenous firms of the host economy. The particular advantages of multinational corporations (such as advanced technologies, management know-how skills, transaction cost minimizing and other intangible advantages) could be transformed into monopoly power, which could be further strengthened by the other two advantages of multinational corporations: the market internalization advantage and the location-specific advantage (Dunning 1981). For instance, multinational corporations could control supplies of inputs in an industry in the host country and gain the benefits of tax subsidy provided by the host government. This may strengthen the competitive advantages of MNEs over domestic firms. Eventually, domestic firms will be forced to exit. Empirical studies backing up those views could be found in Braunstein and Epstein (2002) and Huang (2003). Using a regression model with province-level panel data from 1986 to 1999, Braunstein and Epstein found that FDI had crowded out domestic investment in China. They pointed out that benefits of FDI had almost disappeared as a result of intense competition for FDI among the regions in China, which has forced regions to reduce taxes, regulations on environmental protection, wages and working conditions. Moreover, as Huang (1998, 2003) pointed out, with Chinese investment policies being more friendly to foreign invested enterprises than to domestic firms, Chinese partners were eager to form foreign invested enterprises with foreign investors. Having exploited the preferential policies and even possessed privileges in competing for local scarce resources, these joint ventures eventually crowded out domestic investment.

Futhermore, the influence of particular environments for growth-effect of FDI have been questioned. As having been discussed above, Blomstrom et al (1994) has showed that a positive growth-effect of FDI may be real whether the country was sufficiently rich. Howevr, Carkovic and Levine (2002) has rejected this finding, taking account of an interaction term from income per capita and FDI. Alfaro et al (2007) suggested that FDI had a positive growth-effect in countries with sufficiently developed financial markets. According to Carkovic and Levine (2002), this view was not true since FDI flows did not exert an exogenous impact on growth in financially developed economies. Finally, Balasubramanyam et al (1996) contended that trade openness is very important in order to obtain the growth-effect of FDI, which was defended by Kawai (1994). Carkovic and Levine (2002) also have challenged this standpoint.

Generally, existing literature have provided conflicting predictions concerning the growth effects of FDI. Scholars supporting the positive effects of FDI on economic growth believe that it could stimulate technological change through the adoption of foreign technology and know-how and technological spillovers, thus modernizing host country economy. The opponents hold that FDI may bring about crowding out effect on domestic investment, external vulnerability and dependence, destructive competition of foreign affiliates with domestic firms and "market-stealing effect" as a result of poor absorptive capacity. These findings must be viewed skeptically, however. Because existing studies did not fully control for simulative bias, country-specific effects as well as industry-specific effects. The routine use of lagged dependent variables in growth regressions also is a problem. These weaknesses can bias the coefficient estimates as well as the coefficient standard errors. Thus, it is needed to reassess the present evidence with econometric procedures that eliminate these potential biases.

Insert Figure 1 Here

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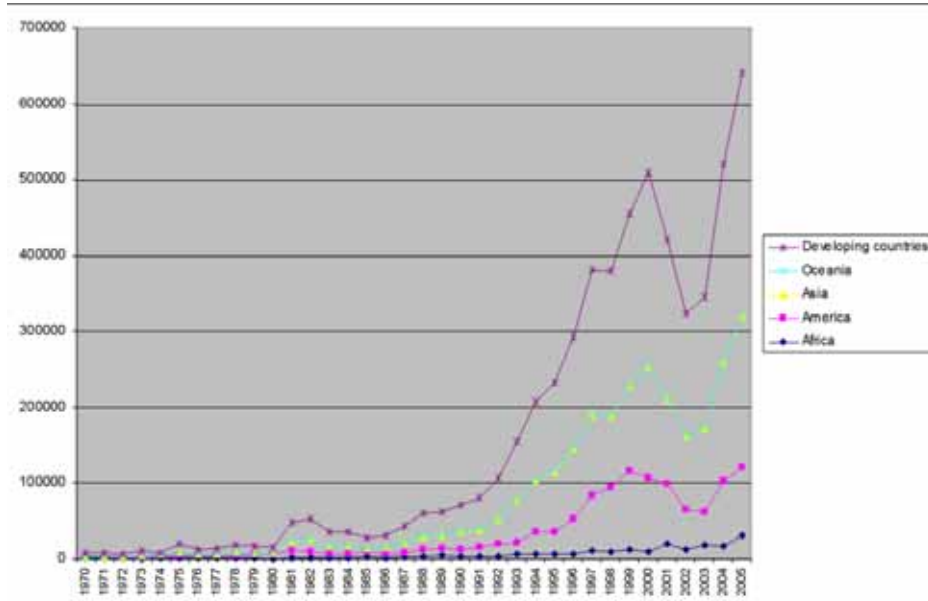
Figure 1. Inward FDI flows to developing countries

(US dollars at current prices in millions)

Source: UNCTAD FDI database

IMPACT Model of Women's Empowerment

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Abstract

Empowerment as delegation of power to someone has been a mechanism to increase personal and work life quality of woman in recent decades. Higher education and occupation is effective instrument to empowerment of women but culture role can't be denied in this relation. Social norms can directly or indirectly limited women empowerment. In this article the role of higher education and occupation in psychological empowerment of women in Tehran has been quested. Current research is a descriptive-practical research. Education and occupation were independent variable and empowerment was dependent variable. Random sampling was used and 600 questioners were completed by women in Tehran city. To determine validity of scale we took advantages of construct validity and factor analysis. The reliability index of Cronbach's alpha was 0.8945 and spearman correlation and structural equations model was used for statistical analysis. Results of research indicate that higher education and organizational occupation determine the level of to empowerment for women in Tehran.

Keywords: Women, Psychological Empowerment, Culture, Occupation, Higher education

1. Introduction

The concept of power has a long history in social sciences and its derivatives like empowerment is one of the controversial topics among social science and management researchers. Since early years of the 20th century, feminism has built a body of theory and in recent decades women empowerment has been suggested as a mechanism to improve the quality of women's work as well as their personal lives. The empowerment of women is an essential precondition for the elimination of world poverty and the upholding of human rights. This concept is accompanied with, freedom, self-determination and power, which are necessary for the women all over the world. Empowerment gives rights to women which enables them to be independent of men.

Since education and employment are key factors in empowerment of women in western societies, theorists believe that there may be the same connection between these factors in non-western societies.

There is much theoretical and practical studies that stress educational and employment opportunities as critical means for women to attain control over their lives (United Nations, 1994). Although education and employment can empower

women, the role of culture can't be denied. Namely, powerful patriarchal norms can hold back women's empowerment plans. Some studies show that, in some cultures, better access to education and the jobs for women in the preceding decades have not significantly changed power relationships within families. In these cases, educated and employed women are as deprived as uneducated and unemployed women. Social norms determine the level of women's empowerment. Social norms can restrict women's empowerment directly or indirectly. Social norms may limit women's willingness to empowerment directly or they may influence the access of women to education and income. Some times, these norms permit women to earn money without retaining control over it or gaining any position in the family or society, in these situations men are the ultimate beneficiaries of women empowerment. In some cases even if women can control their earnings within the family, the outcome may not be completely positive for them, or their family then the women fell happy because of achieving a better financial status, and being able to keep it and save it, but earning money doesn't not mean more money for the whole family, because their husbands or fathers might deprive the women from their money, the money of the husband or father, once they became aware of the women's financial position. It might also lead to marital problems, as earning money would mean they threatened the power balance in the family.

Education and revenue don't cause to empowerment if necessary base for presence of women are not facilitated by social institutions. Based on some researches, educated and jobholder women even have worse condition than none educated and housekeeper women in some countries (mason, 2002); namely in this ground cultural expectation and prescription are strong determinant. There is probability that with existent institutions Iranian educated and jobholder women could not gain necessary freedom and empowerment (Shafiq, 1991).

2. Formal education and employment in Iranian culture

In a preliminary society (protohistory), the most economical promotion had happened by women. In matriarchy age, women had had authority of rule, judge, and family and society administration.

For long, when men were hunting, women were farming around their tent, and were creating many domestic arts; each of them now, is base of many important industries. Early woman innovated first cord and after that textile from cotton; and in highly probability, cause progression of loom, pottery, carpentry and mason arts. She often commerce and aroused domestic club and gently involved man, then taught him decorum and society art. But when agriculture and industry progressed and developed, the stronger gender extended his ascendancy upon it little by little. Agriculture, which was thought ordinary in the eyes of hunters of the old age, completely attracted men, therefore man grabbed economical predominance which was the outcome, from woman; specially because plough, which needed more muscular force, supervision shifted from woman to man. Increasing the tangible assets helped men to make women more obedient because then the man asked her to be loyal so the born children were the real children of the man. Man's paternal right had been recognized in family, hence inheriting which up until that time was through woman, was authorized by man. Maternal right surrendered to paternal right, and in society, instead of matriarchy, patriarchy had been recognized as legal, political and economical unit.

Gods, that until that time were embodied in women, changed to men, wearing beard which indeed were symbols of fathers and tribe chiefs. Around these gods "Harems" were built like what men had dreamt in their solitude (Durant, 20-60-2001).

Durant argued that Iranian women had lofty status in Zoroaster time like it was common in the past. They came among people with complete liberty and could become landlords and estate owners. After Darius (Medes king), women's dignity, especially among plutocracy, decreased (Durant, 432-434, 2001); poor women retained their liberty since they have to came among people for work. Iranian culture was mixed with Islamic culture after Moslems overthrew Sassanid Dynasty. According to Islamic men and women are equal concerning juridical laws and financial independence. Woman is allowed to do any lawful jobs. She can possess her gain and spend it as she wishes (Durant,231, 2001).

Since the beginning of Islam in Iran until Safavie period, Iranian women always had right of possessing tangible and intangible assets. At this age, many buildings were constructed by women everywhere in Iran (Hejazi, 230-232, 1997). Besides housework, women were engaged in productive activities such as carpet weaving and sewing; although these activities were mainly done for meeting the needs of the family, they were also sort of jobs and money making activities (Hejazi, 1997, 243-244).During Safavid period, Iranian women were interested in speech and sermons; they enthusiastically pursued social issues, there isn't any community report which hasn't mentioned the presence of women. Based on available documents at this age, women were literate and interested in science; great men taught their wives and relatives at their home. These women not only contributed at speech and sermons but also held gatherings in their home. Some of them wrote some books about literature, jurisprudence, astronomy and Islamic laws; taught them and became famous (Hejazi, 1997: 175-180).

A study on Iranian women's situation during Mongol period presents that they had the main roles in society and economy and, men perform a second role (Baiani, 1973: 79-111).]

During Safavie period women learnt literature, history and mathematics and they were also interested in poetry and they were active in constructing arena. It seems that during Afsharid and Safavid periods, women were property owners and when men were absent, they took charge of their tribe and family (Hejazi, 2006). In Qajar Dynasty, the most common ways of educating girls were tutors and Maktab Khaneh(a kinf of traditional school) girls and boys were educated together until 7 years old and after that lettered women instructed girls if they had luck to continue their studies. The first girl schools, at this period, were founded by religious missioners in Iran (The Organization of cultural heritage, 2002, 9) . In Qajar period, women were participating in social and economical activities; activities that took new form in Democratic movement era and women supported it in different ways (The Organization of cultural heritage,2002). According to the first census statistics, during Pahlavi period, the percentage of lettered women was % 8 in 1956 and % 26.2 in 1973. Also the percentage of women, that were above 10 and were active concerning economical issues, was% 9.2 in 1956 and %12 in 1971 (Organization of planning and buduting,1973).

The opportunities of Iranian women to attend university, increased after Islamic revolution. As Figure 1 shows the number of women who have registered in Iran top 100 universities is more than men in 2007.

Insert Figure 1 Here

After the Islamic revolution of Iran, importance of house for women and their role on creation of ideal Islamic society, were enforced; women's activity that were performed at house was praised and encouraged.

Having new banks, Insurance companies and industries, number of women that were employed in governmental offices increased. After the war of Iraq against Iran, re-establishing requirements caused occupation growth but men inability and unwillingness to perform works which was known womanly, as well as inflation made women continue their participation in job market (Rostami, 2000: 13).

In general, based on researches done during 1974-2003, it can be concluded that values which empowered women's position in Iranian society, such as increasing women's role on family decision making, represents a new change that has turned Iranian society to a womanly one. Increasingly presence of women in society and the change of values, gently causes formation of womanly values in society (Islamic Cultural Ministry, 2004, 76).

3. Women Psychological Empowerment

Does education and work empower women? And if so, what are the conditions? There are lots of theoretical and practical studies that stress educational and employment opportunities as critical means for women to attain control over their lives. Knowledge is power and the lack of knowledge is poverty and misery. Therefore, the main factor that emancipated women from poverty is knowledge.

Based on many researches, key aspect of empowerment process is education and capacity making. Educated women, who work out, perform important role in family decision making. Formal education to build skills and abilities that an individual needs to feel competent is critical for enhancing psychological empowerment (Spreitzer, 1996). Educated women are more likely to have control over their earning. Education, employment and earning increase women's financial independence therefore they are regarded as powerful means of empowerment.

Based on resource theory, women's contribution of their wages to the family should increase their negotiating power. The gender literature, on the other hand, suggests that women who maintain a hold over their own earnings are more likely to be empowered (Papanek and Schewede, 1988; Wilson-Moore, 1989). Facilitating women's access to money is an effective means for achieving women's empowerment, in the presence of other activities.   There are things to do to empower women like teaching them self-esteem, gender awareness, earning merit and assurance and gaining proper knowledge and skill. Nowadays in society, gender awareness causes actions which give more power to women.

Many women and men in Iran are aware of the benefits that they and their society at large can derive from women taking on a bigger role in generating income. They are willing to consider fostering activities or ventures that achieve this, while assuming that women will continue to perform their traditional work and conform to existing gender roles.

Empowerment means to grant or delegate power to someone (Conger and Kanungo 1988: 474). Empowerment refers to "the process of influencing over events and important conclusions for an individual or a team" (Fawcett et al., 1994:471). The term power means the capacity to obtain a desirable result (Russell, 1974). Empowerment is a process whereby an individual believes in his or her efficacy. Empowerment tends to be more talked about at the cognitive level than realized in practice. It is not a personal characteristic but it is a dynamic process that reflects an individual's opinions about person-environment relationship (Mishra and Spreitzer, 1998:579; Siegall and Gardner, 1999:705). Thus the true benefits of empowerment will not be discovered unless people first perceive themselves as being powerful (Siegall and Gardner, 1999: 705). Empowerment of women means acquiring the power to think, acting freely, developing a sense of self-worth, a belief in one's ability to make desired changes and the right to control one's life, exercise choice, bargaining power, and fulfilling their potentiality as equal members of society. Generally empowerment is any process and activity by which women control their lives. Empowerment-related literature can generally be

grouped into four categories. Individual-oriented that includes personal feelings, personal power, self-determination, and other cognitive variables (Baird, 1994; Fulford and Enz, 1995; Spreitzer, 1995), result-oriented studies that have examined successful cases of empowerment (Berman, 1995; Burbidge, 1995). Operation-oriented literature that explains the quality of meeting empowerment through organizational de-layering, employee involving, establishing commitment, teaming, and intervening (Bogg, 1995; Lashley, 1995; Nixon, 1994; Osborne, 1994). Trait-oriented research is characterized by exploring the preconditions of control and power, trust and inclusion, accountability, honesty, and risk taking (Anfuso, 1994; Foster-FishmanandKey, 1995). In this article we emphasize the first one; psychological empowerment. Thomas and Velthouse (1990) and Spreitzer (1995,1996) think that empowerment consists of some psychological states that are necessary for empowerment to succeed. Our psychological empowerment model has six dimensions: Impacts / self-determination, being meaningful, Professional growth, independence/decision-making, Competence/self-efficacy and Trust. The acronym of dimensions is IMPACT. These components all contributed to a person sense of empowerment.

3.1 Impact / self-determination, which refer to an individual, are perceived degree of influence over outcomes in one's work and family environments. People must believe that their behavior will influence on what happens around them. In other words, an individual must have the opportunity to exert influence in order to have an impact on outcomes at work (Spreitzer, 1995). The term Choice for women means providing women with genuine opportunities to have not only their voice heard, but giving them real power to control and influence over work processes and results. Self-determination refers to everyone's internal need to control the environment (Conger and Kanungo, 1988). It is also defined as women's need to choose, to initiate and regulate actions or to choose the process and work behaviors at work; and should be perceived as an opportunity to make a choice.

3.2 Being meaningful, if a work is going to be done by women managers or employees they should feel that it is a valuable work. They evaluate the job based on their own values and feel that they are doing something meaningful.

3.3 Professional growth refers to personal development in job and profession. Empowered women feel more professional growth in their career as employee or managers.

3.4 Independence/decision-making, Empowerment is related to independence. Empowered women are expected to be independent and make decision on their own. The argument of the empowerment supporters is that women should be empowered to make more decisions about their own lives.

3.5 Competence and self efficacy points at one's work role efficacy or personal mastery; women must feel that they are competent to engage in the behaviors required by the organization or family. Empowerment is about self-actualization and competence. Competence and self-efficacy refer to enable the women to be confidence in their capacity to make the choices. The useful exercise of every other kind of power depends on competence. Competence is acquired through formal training or education (Forrester, 2000). Self-efficacy construct is an aspect of empowerment that combines intention and belief in one's ability into a personal outcome expectation (Bandura, 1982; Mischel, 1973). It reflects the extent to which women have been both personally engaged by the organization and mobilized sufficiently to project expectations for themselves into the future.

3.6 Trust, Empowerment is connected with trust. Trust creates an atmosphere for empowerment and grows in such an atmosphere. Trust requires values like solidarity and maturity. Empowerment cannot be installed like software but must be grown. We can't empower women, but we can create an environment in which they can empower themselves (Willis, 1999: 73).

These factors can be viewed as the essential prerequisites to motivate empowering behaviors in women's life or work. Since organizations play an important role in developing women's awareness of and trust, lots of women take advantage from them. By solving problems, gaining experience, and working together, women will become aware of their own subordinate position in society and become more capable of changing it (Himmelstrand, 1990:112; Scheyvens, 2003, 27). Women need to be empowered with skills, knowledge, and confidence to determine the development path they wish to follow and to challenge the entrenched organizational structures which hamper them.

Regarding the above-mentioned discussion, hypothesis of research are formulated as follow:

H1: formal education leads to psychological empowerment of women.

H2: organizational work leads to psychological empowerment of women.

Based on the research hypotheses, the conceptual model of the research will be as followed.

Insert Figure 2 Here

Due to the mentioned subjects above, it can be expected that education and occupation cause women empowerment; it means they can have important effect on family and organization and are determinant at decision making, they cause women have meaningful role and they don't feel they are performing insignificant work, also they cause growth of

women's vocation and enjoy independence at decision making, gain competency and self-efficacy which are necessary to adopt important decisions and can generate trust in the light of power.

4. Methodology

Regarding the purpose the present research is a practical one and regarding the data collection method it is a descriptive one which is a branch of field study, therefore the connection between the variables is causative. The method of performing the research has been observing method that its greatest advantage is that you can generalize the results.

4.1 Research variables: formal education and organizational employment are the independent variables and empowerment was the dependent variable.

4.2 Society and statistic sample: the statistic sample includes women in Tehran. The samples were provided randomly. The number of participants based on Morgan Table is estimated 600 people. 27 out of 621 which is 4.3% were not having a diploma, 190 people that is 30.6% were holding diploma, 5 people that is 0.8% had post diploma degree, 330 people that is 53.1% were holding BSc, 56 people that is .09 % were holding M.S   degree and 13 people that is 2.1% were PhD holders. 454 people that is 73.1% didn't have any management experience and 167 people that is 26.9% had management experiences.

4.3 Data collection means and its clarity and stability: In this study we used a questionnaire survey to collect data. For this purpose, a scale was designed for empowerment variable by means of discovery component analysis with 13 version of SPSS software. Necessary accuracy was made when questions of questionnaire were designed so that they are simple and clear enough. The first Questionnaire was made up of 34 questions 4 of which were eliminated because of low factor loading. Likert scale with a five-point scoring format was used for items [Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly agree (5)].

Education and occupation are independent variables and empowerment is the dependent variable. Random sampling was used in current and 600 questionnaires were completed by women in Tehran city. Based on Morgan table statistics sample size contained   621 person as 4.3%(27 person) under diploma, 30.6(190 person) diploma, o.8%(5 person)post diploma, 53.1%(330 person) B.S, o.9%(56 person)M.S. and 2.1%(13person) had doctorate.73.1%(454 person) have not had any management precedent but 26.9%(167 person)have had it.

From 800 questionnaires which were distributed, 630 questionnaires were restored, 9 questionnaires were discarded to defect and 621 questionnaires have been used on analysis. The rate of the questionnaires which were fully completed was 78% which is a satisfactory rate. The 30 questionnaires were distributed for determination of reliability. Coefficient of Chronbakh's Alpha of the women empowerment scale is 0.8945 which is a proof of instrument reliability. Also content and factor validity were utilized to examine the validity of the questions. We utilized experts' opinions to evaluate the questionnaires' content validity. At this step, several interviews were performed and necessary reformations were made; hence we confined the questionnaire evaluates same trait which we wanted to evaluate Test of the questionnaire factor validity were made with confirmatory factor analysis and utilization of 8.53 LISREL software package. Table1 demonstrates results of the confirmatory factor analysis.

Insert Table 1 Here

The LAZEL output of Table 1 shows that, the model to measure empowerment is a good one because the K2 value, RMSEA value and the proportion of K2 to its free degree was little and also the values of GFI and AGFI were above 90%. Ale T values are meaningful. The results, on the whole expresses that this questionnaire is creditable and clear to a high extent.

Findings: Evaluation of correlation between variables was tested by Spearman rating correlation test using SPSS software. Causal relationship between independent and dependent variable of research was tested by structural equation model using LISRELL 8.53 software. In this research we utilized Spearman test because the variables are qualitative.

It is perceived that relationship between income, education and empowerment of women in Tehran is positive and meaningful; it means whatever women's income and education increase, they feel more empowered.

Structural equation model is used for evaluation of casual relation which is mentioned in the hypothesizes; this is the final step of confirmatory factor analysis, which already is performed on the evaluating research scale , and also by means of fit indexes of the model shows validity of the conceptual model which is purposed.

As it is seen, firstly, hypotheses of the research are confirmed because t-values are meaningful which means formal education and income have significant effect on women's empowerment. Second, validity and appropriate fitness of the model is confirmed because its χ^2 value, RMSEA and χ^2 ratio into degree of freedom, are low and its GFI and AGFA are more than 90%. As χ^2 value and χ^2 ratio into degree of freedom in the attachment shows model has appropriate fit, and RMSE (Note 1) is less than 0.05 and GFI (Note 2) and AGFA (Note 3) are more than 90% and also all the t-values are meaningful in 99% confidence level. These outcomes demonstrate the questionnaire of the research has high validity and reliability;

R2 of the model is 61% that means the model of the research expresses 61% amount of women empowerment in Tehran. Standard coefficient of education into empowerment is 0.18 and its t-value is 3.27 which' more than 1.96 and it's significant. Also standard coefficient of income into empowerment is 26% and its t-value is 4.87 which are significant.

5. Conclusion

In this research, we tried to study the role of education and occupation on women empowerment in Tehran. We wanted to know if the impact of education and occupation on empowerment was as the same as western culture or it's different. The whole result of research shows education and organizational job cause psychological empowerment in Tehran. The result is compatible with Iran's history and Iranian women. Whenever they have had opportunity to educate, have used it for promotion of society and family welfare and not just for themselves.

Living in metropolises like Tehran makes it inevitable to use the ability and talents of women in fast trends of life and technology. Undoubtedly women have the ability and capacity to be empowered. The Outcome of this research shows that income and job have remarkable influence on women empowerment in Tehran city (p<0.01;t=4.87,0.26). As mentioned, practical and theoretical studies at western societies has represented that education and job brings women empowerment but the role of culture and norms are determinant as it could counteract this effect. For instance, Powerful patriarchal norms can stifle women's empowerment plans. Although common assumption poses that Iranian patriarchal culture is an impediment to women empowerment, our findings demonstrate that employment and empowerment have strong relationship in Tehran city and income is very important. It's undeniable that religion is one of the most powerful components of Iranian culture. The majority of Iranians are religious. Islam doesn't privilege men to women. It doesn't disagree with men and women equity in rights but disagrees with their similarity. Shiite jurisprudence has given financial freedom to women; this freedom wasn't given to women in many countries like Greece, Rome and German till recent centuries. Islam rid woman from man's slavery and servitude at home and out; it obliges man to secure financial requirement of the family and in this way, rides women of any obligation to secure them or their family expenditure.

In modern world, using women's human force is inevitable; undoubtedly they have ability and capacity to participate in society. As mentioned, education and formal employment are prerequisite of women empowerment. Research results demonstrates formal education has meaningful effect on women empowerment in Tehran (p<0.01; t=3.27, 0.18). However, researcher expected that education coefficient has more impact than income coefficient, but country high unemployment rate and women's low expectancy for finding a job, have caused lower education coefficient than income coefficient in our model.

Iranian women have been able to allocate high percentage of university entrance, in long time the society can benefit from this strong potential to make a developed country. Based on human history, woman have had very important roles in forming human culture, therefore Iranian policy makers should look at this event as an opportunity not a threat. Of course, this jump of Iranians women's attendance at university should be coordinate with other institution in society and empowered women shouldn't be sacrificed for high speed development. On one hand higher education increases the opportunity of employment, on the other hand it could be said that employment plays an effective role in continuing their studies and job promotion. Unfortunately for Iranian women, rate of employment have not harmonized with growth of higher education rate; women's achievement to higher education hasn't led to more participation, employment or wider rang of job for them.

Evaluation of whole employment trend of country by Iranian statistics center demonstrates that though whole employment rate has increased from 86.9% to 87.55%, during 1376- 1381, women's employment rate had decreased from 85.6% to 80.23% during these years (Gaeni,1385).this trend is an   alarm for public policymakers; women may lose their motives if it is going to continue and they aren't going to   plan for woman's effective participation in society. The large number of Iranian men and women are aware of benefits that they and their society at large scale will gain if women accept major role on income production. They are eager to increase women's participation in society with the assumption that women are going to continue their traditional work according to their gender roles; therefore policymaker have to change cultural and normal models of the society via empowerment process gradually.

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Notes

Note 1. Root Mean Square Error of Approximation

Note 2. Goodness of Fit Index

Note 3. Adjusted Goodness of Fit Index

Table 1. Results of the confirmatory factor analysis

| Number	Questions	Standard coefficient	t-values
1	I am sure my family members are honest with me.	0.66	13.45
2	I am sure my family members share important information with me.	0.47	6.3
3	I am sure my family members keep their promise.	0.73	14.43
4	I can determine plans for my family.	0.46	9.89
5	I have an important role in the responsibility of supervising my family.	0.57	9.77
6	I decide about new event on my family.	0.48	9.02
7	I can act as I wish.	0.85	17.68
8	I decide about family attitudes.	0.37	8.83
9	I freely decide about whatever I do.	0.75	14.84
10	I participate at decision making in family budgeting.	0.47	5.39
11	I am a decision maker at family.	0.61	10.10
12	Not only my husband but also my relatives take advantage of my decisions.	0.44	9.67
13	My opinions are used by my family members.	0.54	9.65
14	I have important effect on whatever happens in family.	0.72	14.73
15	I believe I help my family members to become independent.	0.39	3.34
16	I believe that I am able to do works.	0.57	9.14
17	I believe that I am very effective and impressive.	0.47	9.55
18	I believe that I am empowering my family members.	0.54	9.65
19	I have strong information about my work.	0.46	8.84
20	I believe that work is an opportunity for my growth.	0.83	17.66
21	I feel that I have the opportunity to impress other people.	0.73	14.89
22	I feel that I perform different work.	0.39	3.03
23	I believe that I am good on everything which I do.	0.57	9.33
24	My work is important to me.	0.44	9.71
25	My work is meaningful for me.	0.55	9.77
26	I am sure that I have the ability to do my job.	0.49	8.84
27	I am sure about my capabilities for doing tasks at work.	0.84	17.38
28	I have full commands over the skills which are needed for performing my job.	0.74	14.74
29	I am free to determine how to perform my work.	0.63	14.52
30	Generally I feel independent doing my work.	0.57	11.32
All of the t-values are meaningful at level of p<0.01			
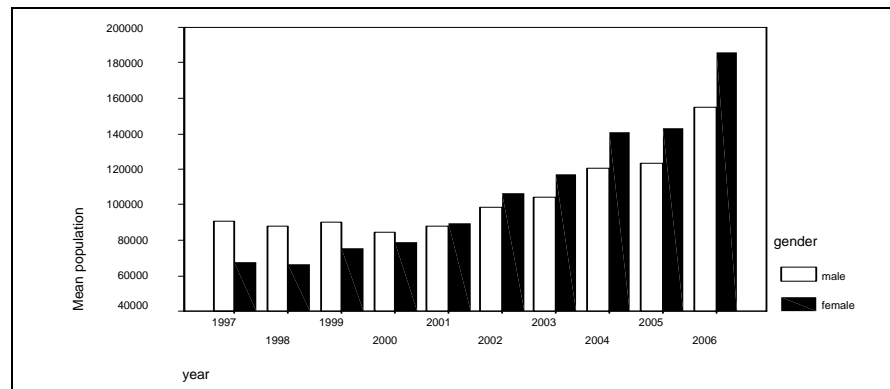
Figure 1. Iran top 100 universities gender-base percentage of students
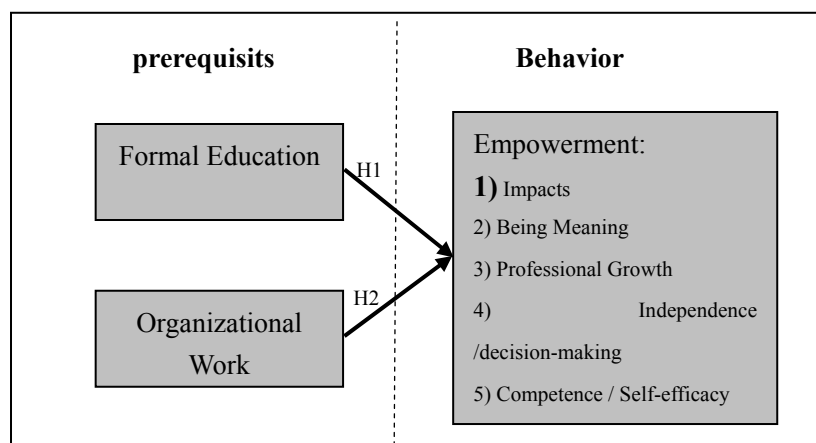
Figure 2. IMPACT model of women empowerment

Small and Medium Enterprises (SMEs) Competing in the Global Business Environment: A Case of Malaysia

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Abstract

Small and Medium Enterprises (SMEs) play a vital role in the country's economic development. The current trend of economic growth and the rapid industrial development has made Malaysia as one of the most open economies in the world. In conjunction with the Ninth Malaysian Plan (2006-2010), the government is devoting and designing the SME development plan to assist the SMEs to meet the new business challenges in the competitive global business environment. The focus of this paper is the discussion of the competitiveness facing SMEs in the global business environment by examining the opportunities and supports from the government. Furthermore, this study also analyses the challenges of Malaysian SMEs in globalize market together with economics turmoil.

Keywords: Small and Medium Enterprises (SMEs), Challenges, Competitiveness, Globalization

1. Introduction

It is apparent that small and medium enterprises (SMEs) play a vital role in the economic development of a country. The current trend of economic growth and the rapid industrial development has made Malaysia as one of the most open economies in the world. In conjunction with the Ninth Malaysia Plan (2006-2010), the government is devoting and designing the SME development plan to assist the SMEs to meet the new business challenges in the competitive global business environment.

There is no doubt that economic activities are moving in the direction of globalization. The system of production and distribution is evolving worldwide. The important role that international trade plays in connecting countries around the world is clear.   Globalization creates new structures and new relationships, with the result that business decisions and actions in one part of the world have significant consequences in other places. Underlying and reinforcing these globalization trends is the rapidly changing technological environment, particularly in information processing, and telecommunications. Changes in telecommunications and data processing capabilities make it possible to coordinate research, marketing and production operation around the world. Almost instantaneous communications make it possible to trade financial instruments twenty-four hours a day, and thus more return-sensitive are location of resources within firms, industries and countries.

The growth of global markets stimulates competition and forces governments to adopt market-oriented policies, both domestically and internationally. Modern technologies have greatly reduced the cost of information and the capabilities to participate in the global economy. In fact, there is ample evidence that SMEs has not only flourished in domestic economies, but that their international presence has grown as well. An overview of SME participation in the global economy reveals at least three lines of activity: trade, technology, and investment. The most commonly discussed topic in SMEs international literature is their role as exporters from their domestic jurisdictions to foreign customers. The opportunities and challenges facing SMEs in this role are well known. The second most prominent issue in the literature is SMEs and technology, and particularly SME supplier connections with larger Multi National Enterprise (MNEs) in local markets. If small firms face higher barriers to entry in international operations than large firms, and have a more difficult time protecting their property rights, how can small firms become international players? When SMEs invest abroad, they generally seek help from larger corporations. Gomes-Casseres (1997) examines the use of strategic alliances by SMEs. He asks three questions: (1) when do small firms use alliances to do business abroad, (2) how do small businesses use alliances, and (3) what effect do alliances have on firm's competitive performance?

Internationalisation of the production and distribution of goods and services, and the associated trade and capital flows, has accelerated in most countries during the past 15 to 20 years. This process has been loosely described as "globalization". However, it has been broadly accepted as a set of activities associated with the multinational or direct foreign investing firm which integrates its activities across national borders to maximize the profits or interests of the group. More simply, it can be the broader opening up of national economies to the international marketplace (EPAC, 1995a; 1995b). It is believed that globalization is actually not a new phenomenon since international trade, foreign direct investment and associated movement of capital, management and labor has been going on for centuries. If globalization is defined as being the broader opening up of national economies to the international marketplace, then it has implications for small firms as well as large. Increased participation of small firms in the international marketplace can be seen as an important part of globalization.

Central Bank of Malaysia findings based on case studies done on the SMEs with more than 10 years in business (Central Bank of Malaysia, 2003), shows that the key success factors of SMEs in the globalize space environment are as follows:

i. Sound management capability and integrity

ii. Sound business cultures and entrepreneurial spirit

iii. Prudent financial management

iv. High quality products and services

v. Effective program for human resource development

vi. Strong support from financial institutions (in terms of lending and advisory services)

vii. Strong marketing strategies (including good network with suppliers)

viii. Continuously looking for opportunities to expand

The structure of this paper is arranged as follows; section 1 introduces the paper, section 2 briefly describes the background of SMEs in Malaysia. Section 3 discusses the challenges facing by SMEs in globalize market together with economics turmoil. Section 4 analyses the competitiveness of Malaysian SMEs in the global business environment by examining the opportunities and supports from the government, while section 5 concludes the paper.

2. An overview of small and medium enterprises (SMEs) in Malaysia

According to Small and Medium Industries Development Corporation (SMIDEC), an enterprise is considered as an SME in each of the representative sectors based on the annual sales turnover or number of full time employees. SMEs are divided into two sectors; manufacturing, manufacturing related services and agriculture industries; and services (including ICT) and primary agriculture. From Table 1.1, an improved definition of enterprises in respond to the rapid changing of the industry of globalization is provided. It is more specific to a particular industry, which is adopted by all commercial banks, ministries and government agencies at federal and state levels. However, it is noted that during the past 7 years, the definitions of SMEs have changed thrice. In 1999, the SMEs was defined as Malaysian owned companies/ institutions with net assets or shareholders funds of RM10 million whilst prior to that the shareholders funds or net asset was limited to RM2.5 million. The frequent changes in the definition of SMEs have also affected the formulation of long-term strategy for SMEs development.

Meanwhile, with reference to Table 1.2, Malaysian Department of Statistics has divided the distribution of establishment by sector, namely; manufacturing, services and agriculture. The highest distribution is from service (87.9%), followed by agriculture (7.1%) and manufacturing (5%).

3. Challenges facing Malaysian SMEs in the global business environment

Several of the existing literature, including Saleh & Ndubisi (2006); Samad (2007); Abu Bakar et al. (2006); Aris (2006); Harvie (2004); Wang (2003); Stuti (2005); Wafa et al. (2005); Ritchie & Brindley (2000); Decker et al. (2006); Foon (2006); and SMIDEC (2007), emphasize various challenges facing SMEs in a globalized environment, for example from difficulty in facing recession, barrier from global sourcing, low productivity, lack of managerial capabilities, lack of financing, difficulty in accessing management and technology, heavy regulatory burden and others. In the other study, Teoh & Chong (2008) found the barriers   to entrepreneurship namely lack of access to credit and lack of access to formal business and social networks. Besides, SMEs are dealing with intensified global challenges, new emerging technologies in ICT and production process as well as increasing factor costs, which affect the export competitiveness.

SMEs are classified into three different categories according to their capability and their success walking through the challenges. Firstly, a group of SMEs that is viable or able to become internationally competitive, may gain the benefit from the regionalization (McMahon, 2001). The second group is SMEs that are less adaptable to the globalization pressure. They are unlikely to survive in the present situation without making fast move to improve productivity, to conform to international standards, to train and employ skill management and professional staff to face competitions. The third group is SMEs that are protected by the government from the globalization effect (Samad, 2007).

3.1 Recession

Economic downturn has been a constant challenge facing SMEs. Since the year 2007, the world economy experienced several unfavorable events such as boiling oil prices followed by sub-prime credit crunch in the USA, which leads to a financial distress to the financial market. Most nations are currently showing a diminishing economic growth and increasing costs of production, which indicates that recession is unavoidable. The common aftermaths of a recession are lower expenditures by consumers, lower demand for products and services, lower productions and job cuts. SMEs, small in nature, are affected in larger degree especially those involved with trading and supplying products or services to other businesses. Lower cash flows and limited financing are the major challenges faced by the SMEs during this bearish period. However, evidence from other regional economies suggests that SMEs came through the crisis better than large enterprises. The avoidance of a future crisis could, therefore, depend upon developing a competitive SME sector that is able to compete in both domestic and external markets. Harvie (2004) argues that the SME sector has a crucial role to play in the sustained recovery of the region arising from the business opportunities created by the restructuring process itself, the movement towards closer regional economic integration, advances in information and communications technology (ICT) and more specifically the business opportunities arising from the Internet.

3.2 Global sourcing

Globalization and liberalization has made business resources more mobile and transferable beyond borders. Competition for resources such as material and capital has increased in many Asian countries including Malaysia. Levitt (1983) in his article on the globalization of markets has emphasized that companies must learn to operate as if the world is one large market ignoring superficial regional and national differences. In the process, globalization promotes technology, source and knowledge transfer, as ever-new processes of production and services will be provided. Globalization also promotes the rapid innovation, easy entry as less government protection and convergence across industries due to less trade barriers within region, constant arrival of new range of products and liberalization opening up of new economies (Humprey, 2001). Besides all the good deeds, liberalization harms local SMEs as they have to compete with cheaper, more innovative incoming foreign products or services and compete for resources and capital. Globalization also creates unprecedented information and communication technologies (Abu Bakar et al., 2006). In contrary, globalization also requires an efficient risk management, relationship marketing, and supply chain management (Ritchie & Brindley, 2000). The objective of these fields are to reduce uncertainty, identify potential risks, elicit better quality information, and improve understanding of the competitive global environment.   Eventually, SMEs need to improve their competitive capability by the effective measuring in collaborative environments (Alba et al., 2005). Therefore, SMEs must take advantage of low labor cost, flexible logistics, new technology, cheaper materials and of less regulated operating environment. This in return provides synergy to small and medium enterprises in the emerging countries like Malaysia.

3.3 Lack of state government support

The state government needs to play an important role and commitment to SMEs, especially in key growth areas as well as the available assistance and infrastructure to support them (SMIDEC, 2007). One such area is the Halal industry. Many of state governments in Malaysia did not attempt to encourage Halal industry. For example, Negeri Sembilan and Melaka state still allowing pig farming without concerning the Halal industry on aggregate basis. With estimated figures for Halal trade of USD2.1 trillion, there is staggering potential for Halal products globally. The state government must recognize this potential as it prepares Malaysia towards becoming the international Halal Hub by 2010. Other key

growth areas include the growing franchise industry and the current trend of shared services and outsourcing (SSO) (Central Bank of Malaysia, 2003). These areas are also need to be addressed and taken into consideration by all state governments to ensure the successful of the proposed national agenda (Teoh & Chong, 2008).

3.4 Relationship between multinational corporations (MNCs) and SMEs

SMEs in Malaysia does conduct some businesses with MNCs either in large or small scales, as a vendor or franchisee. If the existing MNCs are moving out of the country, because of the liberalization of the market, to lower labor cost countries like China and India, SMEs will lose business and trigger "vicious circle" between the foreign direct investment and SMEs. This is in view that if a MNC is shifting out, some SMEs may close down and other MNCs also could not source some parts and components (Samad, 2007). From the other perspective, the extensive research has examined the factors that influence the international expansion and success of MNCs, but Knight (2000) breaks new ground by focusing on the internationalization of small entrepreneurial firms. Using data from an empirical study of 268 SMEs, he devises a structural model that reveals the role of international entrepreneurship orientation. His findings imply that international entrepreneurial orientation is an important driver of several important parameters, key to the international performance of the small firm. Among these are internationalization preparation, strategic competence, and technology acquisition. Hence, the government needs to undertake certain strategic actions to sustain the existing MNCs due to their significant role in the economy and for SMEs to survive and prosper.

3.5 Intellectual property and bankruptcy issue

SMEs in Malaysia are not really exposed and concerned to the important of protecting intellectual property in meeting the challenges due to globalization. However, a study by Kitching & Blackburn (1998) highlighted that SMEs owners placed most emphasis on informal methods to protect intellectual property. These methods were more familiar, cheaper, less time-consuming and frequently considered as effective as more formal rights. As for SMEs, the formal recognition and registration often considered to be uneconomical in order to enforce their rights through the existing legal system. They need to protect their intellectual property in a cost effective way. This is a setback when gigantic companies took over their rights. In terms of bankruptcy arrangements, many entrepreneurial ventures are not a success, but they are not necessarily failures in the sense of losing money. It makes sense to try to make markets contestable by reducing exit costs and impediments for ventures that are not up to initial expectations (Samad, 2007).

3.6 Legal issues in global business

Given the global market, SMEs are facing the lack of knowledge on legal matters, and in Malaysia, there is no body or agency that advises matters pertaining to legal specifically to SMEs going abroad. Teoh & Chong (2008) found the barriers of SMEs entrepreneur were lack of access to gain management experience and exposure in regards with international rules and regulations. Hence, SMEs may find access is restricted because of obsolete and inappropriate regulations. In terms of registration and legal incorporation, many of these SMEs need to establish a presence in a foreign market in order to be visible to customers. Registration and legal incorporation requirements vary considerably amongst countries, and are often unnecessarily complex and expensive (Abu Bakar et al., 2006). It may also take a longer time for SMEs to obtain reliable information about market opportunities and relevant regulations for new products, services or techniques. In addition, there are certain specific requirements or controls imposed by foreign governments (Aziz, 2000).

3.7 Decision process and R&D landscape in SMEs

Large corporation commonly spent substantial amount of money hiring consultant or setting up business development division comprise of trained personnel to make major decisions about any business matters. SMEs on the other hand are often hurdled by their limited capital for business development of R&D. Since innovation is   crucial in R&D aspect, SMEs owner may diagnose their current business position and strategically plan intended changes by enhancing their operational capabilities. Most importantly, they may strive to take practical steps to evolve from efficiency SMEs all the way to innovation SMEs (Hong & Jeong, 2006). In addition, the owner of the SMEs usually makes vital decisions such as investing for the expansion of the business or venturing into new market. Furthermore, integrated R&D has a possibility to reap economies of scale in global production networks (Coe et al., 2004). Without adequate knowledge, information and systematic analysis, it is even harder to assess potentials and threats of the global business to the companies. In terms of research and development, it is mainly aimed at the needs of big enterprises, so there is often a lack of know-how about any latest and new emerging technologies including Internet in SMEs (Decker *et al.*, 2006). While Internet technologies are global and their core is standardised, their applications can and need to be adapted to local circumstances (Tetteh & Burn, 2001). Internet offers this amazing capability to reconcile global uniformity and local flexibility. It facilitates cross border links, but at the same time creates new configurations of networks and clusters (Indjikian, 2003). This in turn, SMEs will be encouraged to use online banking and payments services as a part of their common business practices.

3.8 Branding the products in the global market

Branding is a way of differentiating products or services from others and making the products attractive to customers. SMEs in Malaysia do not consider branding as their utmost strategy to compete globally. Less capital and effort invested in making products more attractive and well packaged, as well as product innovation particularly for export market. Companies may achieve competitive advantage through acts of innovation and innovation can be in the form of new product design, new production process or new marketing approach (Foon, 2006). SMEs need to strengthen the branding to better position themselves to penetrate new market opportunities. SMEs may also actively distribute its products through franchise if a recognized brand is established.

Therefore, SMEs need to revolutionize, adopt and adapt in order to compete and remain relevant in the emerging and challenging economies. SMEs also need to reinforce the domestic industry to better position themselves to make a way into global market opportunities. Competitive and resilient SMEs are important in the growth and development process of the Malaysian economy including the adoption of appropriate strategy. According to Wafa et al. (2005), the differentiation strategy was found to have the relationship with the performance and competitiveness of SMEs. Moving forward, SMEs have great potential to be the engine of the economic growth as could be seen in other developed countries both in the East and in the West like Germany and Japan (Samad, 2007).

The strategy practices by SMEs in Malaysia are pertinent to be competitive in the global market.

4. Competitiveness of SMEs in the global business environment: a government supports

Similar to the MNCs, SMEs are proven to play a significant role in the economic stability and growth of a nation. SMEs is an important segment of the Malaysian economy accounting for 99.2% of total business establishments, employing 5.6 million of the work force and contributing about 32% of gross domestic product (BNM, 2008). Most SMEs require support or assistance from the government especially to be more competitive in the global business environment. The role of government is to encourage companies to move to higher levels and gain competitive advantage in the globalise space environment (Samad, 2007). The government of Malaysia, through its many agencies deployed several measures and platforms to assist SMEs in managing the impact of higher costs on their production, slower turnover and financial distress.

The National SME Development Council (NSDC) was established in June 2004 by the government to assist the SMEs. The NSDC acts as the highest body to formulate strategies, to provide direction and coordinate development of SMEs. It also guides and oversees SME development initiatives to ensure effectiveness in strategies implementation. The NSDC is chaired by the Prime Minister and comprises 16 Members of Cabinet and Heads of 3 Agencies involved in SME development. Bank Negara Malaysia serves as the secretariat to the Council. Up to beginning of 2009, the NSDC has implemented several initiatives to strengthen the SMEs.

In 2007, more than 286,000 SMEs has been assisted through 189 development programs initiated by NSDC involving total expenditure of RM4.9 billion. These development programs, guided by the SME Blueprint Management Framework, provide business support services, entrepreneurship training, technical training, business premises and factories. The framework has improved collaboration between ministries, agencies and SMEs involved, and has made SME development programs more effective, successful and beneficial.

Beside development programs, the NSDC has also emphasized on financial assistance to SMEs. Through Bank Negara Malaysia, the council has implemented several measures to enhance access to financing by SMEs. There are 26 agencies, 2 ministries and 9 banking institutions involve in providing financial assistance to SMEs in form of soft loans, grants, equity financing, venture capital, guarantee scheme and tax incentives. SMEs may take the financing for the purpose of entrepreneur development, marketing and promotion, strengthening skills of workforce, product development, quality accreditation, technology development, debt restructuring and other general business development. The Central Bank of Malaysia, on behalf of the council granted incentives such as credit guarantee to private banking institutions as to encourage them to be part of this program.

In the meantime, strong credit history and performance of the SMEs has made financing more attractive and less risky to the banking institutions. Record shows that in 2007, non-performing loan ratio declined to 9.1% from 11.1%, and a total of RM63.2 billion financing was approved to more than 132,000 SMEs by banking institutions and development financial institutions (BNM, 2008). In order to further improve the financial support to microentrepreneurs, the government has launched the National Microfinance Logo in October 2007 as another financing option for SMEs, provided by nine financial institutions. As a result, over 26,000 micro enterprises have grabbed the opportunity with total micro financing outstanding was RM271 million as at the end of March 2008.

In 2008, the NSDC has implemented the NSDC Blueprint 2008 that includes 198 key programs with financial commitment of RM3.2 billion. It is a continuance to the 2007 framework. These programs benefited SMEs across all economic sectors, in the areas of enhancing the supporting infrastructure, capacity building and improving access to

financing. The aim of the 2008 Blueprint was promoting SMEs in the services, primary agriculture and agro-based sectors, in line with the strategies formulated in Ninth Malaysia Plan or *RMK9 (Rancangan Malaysia ke-9)*.

The programs in capacity building focused on entrepreneurship, human capital development, marketing and promotion, and provision of advisory services to SMEs. Some 75,000 SMEs participated in entrepreneurship programs for distributive trade and other strategic sectors and more than 38,000 SMEs have better access to advisory services provided by various Ministries and Agencies through SME Expert Advisory Panel and Technology Awareness and Advisory programs. As for marketing and promotion exertion, Ministry of Entrepreneur and Co-operative Development (MECD) and Malaysia External Trade Development Corporation (MATRADE) have organized several promotional programs locally or abroad for SMEs products and services. Such events offer platform for SMEs to penetrate and widen their target market.

In terms of enhancing supporting infrastructures for SMEs, the government provides more business premises, factories, business stalls and incubation centres. Two major infrastructures are the establishment of Halal Park and center for packaging, distribution and marketing of agriculture products (PUSPRO). These projects create opportunity for SMEs to better market their products at lower production costs. In terms of financing, 2008 blueprint aims for a total of RM70 billion financing to 140,000 SMEs from banking and development financial institutions. In order to accomplish this financing objective, the government implemented other financial assistance programs that includes the rural economy funding scheme and the franchise financing scheme. The Credit Guarantee Corporation Berhad (CGC) has established the SME Credit Bureau that operates as a comprehensive SME information center offering credit reports and credit ratings. This effort facilitates SMEs in obtaining financing at more favorable terms and enhances the competitiveness of SMEs by inculcating a healthy credit culture amongst them.

Furthermore, the council or NSDC has agreed to shift SMEs towards higher value-added industries by encouraging development of knowledge-based SMEs (K-SMEs). K-SMEs are defined as companies with more than 20% of its staff being knowledge workers, companies that directly use ICT and technology in business processes or for product improvement, companies that adopt innovation and R&D in business processes or for product development, and companies that provide systematic training and learning of technical skills to their employees. SMEs that have achieved K-SME status will gain fiscal incentives, access to technology funds, capital and financing offered by agencies under the Ministry of Science, Technology and Innovation, quicker intellectual property and patent registration, as well as priority access to government procurement. This measure has made K-SMEs more competitive and viable to manage the pressure of global economic environment.

The council has also set up a special committee to recommend measures to assist SMEs absorbing the impact of rising prices and operational costs in 2008. Stategic plans considered by the committee include tax incentives to encourage SMEs to upgrade their machineries and equipments, adopt new technology, implement development programs to enhance capabilities of SMEs and to reduce their operational costs. In conjunction with recommendation made by the special committee, the council has laid out additional measures aimed at providing avenues for SMEs to seek financial or advisory assistance and enhancing efficiency and productivity of SMEs.

In order to probe rising operational costs that caused financial difficulties, viable SMEs could seek financing from SME Assistance Facility with a total amount of RM700 million established by Bank Negara Malaysia in August 2008. The fund is intended for viable SMEs to continue their business operations and to preserve employment. This financing can be obtained through commercial and Islamic banks, SME Bank, Agro Bank, Bank Rakyat and Exim Bank at 4% per annum interest charge. SMEs facing cash flow problem may discuss with CGC or their loan providers to restructure outstanding loans and reschedule repayment.

Bank Negara Malaysia and other relevant agencies has provided avenue for SMEs to seek advise on matters pertaining how to better manage cash flow and rising costs. Bank Negara Malaysia has set up One-stop Center on Financial Advisory so that SMEs will have the chance to know more about the available financial and non-financial programs provided by the government. The CGC provides SMEs with advisory services on cost effective measures that may be taken to manage operational costs. Banking institutions play their role by setting up SME Units of the bank to provide information on various sources of financing available, provide advisory services and facilitate the loan application process. The Advisory Center of SME Bank offers similar assistance together with expert advice on marketing, business development, operations and customer services.

In order to enhance efficiency and productivity, SMEs are encouraged to undertake measures to modernize and upgrade machinery, equipment and operation, as well as utilize energy-saving devices. In order to assist SMEs in modernizing their operation and reducing costs of operation, Bank Negara Malaysia has established a RM500 million SME Modernization Facility in form of financing to purchase or upgrade machinery and equipment. SMIDEC has also intensified efforts to provide consultancy to assist SMEs in strengthening their business operation. A program named 'University-SME Internship Program' was introduced to create linkage and cooperation between university and SMEs. Selected final year university students will be attached at participating SMEs, at no cost, for three months to assist them

in the areas of basic management, financial management, marketing as well as practices and applications of technology. Another program organized by SMIDEC is Skills Upgrading Program. SMEs that are facing the problem of not being able to support their employees for training will have the opportunity to enhance technical skills and capabilities of their employees through this program. The company will have to cover only 20% of total training costs because SMIDEC has provided another 80% of the total costs as training grant.

SMIDEC also offers SME Expert Advisory Panel (SEAP) to SMEs. SEAP is a programme implemented to strengthen technical advisory services. SMEs are given on-site assistance by industry experts to transfer their technology know-how and industry experience. Recently, SMIDEC launches the other programme named the Industrial Linkage Programme (ILP) which is aimed at developing domestic SMEs into competitive manufacturers and suppliers of parts and components and related services to MNCs and large companies. This programme is supported and enhanced by SMIDEC's existing financial schemes and developmental programmes. To encourage participation in the ILP, Pioneer Status with tax exemption of 100 per cent on statutory income for five years, or Investment Tax Allowance of 60 per cent on qualifying capital expenditure incurred within a period of five years are provided to eligible SMEs. SMEs must manufacture products or undertake activities in the List of Promoted Activities and Products in an ILP to become qualified for the incentives and supplying to MNCs or large companies. For MNCs or large companies, expenses incurred in developing SMEs such as training, factory auditing and technical assistance to ensure the quality of vendors' products, will be allowed as deduction in the computation of income tax.

In addition to specific programs implemented by the NSDC,SMIDEC and other related agencies, SMEs may also take advantage of suplementary incentives approved by the government. SMEs can acquire or import machinery and equipment that are used directly in their operation for the purpose of modernization since the government has granted import duty exemption. SMEs are also eligible for sales tax exemption if the machinery and equipment are manufactured locally. Another opportunity for SMEs is Energy Efficiency Grant up to RM500,000 per application from SMIDEC. The objective of this incentive is to promote implementation of cost saving measures relating to energy usage at factory premises and operation improvement. SMEs may apply for the grant to purchase equipment or devices related to energy saving.

Bank Negara Malaysia has also announced another financial assistance scheme with total funds of RM2 billion for SMEs to keep on competitive and to survive in the global recession. The scheme can be accessed at any commercial and Islamic banks, SME Bank, Agrobank, Bank Rakyat, EXIM Bank and Bank Simpanan Nasional. Each eligible SME may obtain financing up to RM500,000 for the purpose of business operation such as working capital, project financing and capital expenditures. The CGC will provide credit guarantee on 80% of the principal and interest charges in order to encourage participation from commercial banks.

5. Conclusion

Globalization has made the economy of a nation more exposed to any unfavorable events or crisis since the market has becoming less segmented. The impact of rising oil price and financial crisis in the U.S.A. has spread out to almost every nation in the world that has opened their door for international business. Most country has experienced the mist of recession as businesses are slowing down, productions are diminishing, unemployment rate climbing up, bearish capital market and capital flows stalled. Malaysia experienced similar symptoms and SMEs were hit hard. SMEs, small in its assets, working capital, skilled workforce etc, are affected in larger degree especially those involved with trading and supplying products or services to other businesses. Lower cash flows and limited financing are the major challenges faced by the SMEs during this bearish period.

Nevertheless, the government has recognized the importance of SMEs for the economy and has implemented various policies, action plans and programs to assist them in this difficult circumstances. However, new empirical evidence suggests that policies should not be directed solely to strengthen inter-firm co-operation within SMEs clusters. To be more effective, they should be combined with another set of policies: government interventions at the national level and specific schemes to build up the technological capabilities of SMEs (Albaladejo, 2001). Worth to mention, SMEs in Malaysia are still capable of absorbing the depressing global economic condition due to well structured supporting plans tailored by the government and related agencies. Internal strenghts of the SMEs as a result of the continuous development and innovation as well as knowledgable workforce has also contributed to their resilient.

6. Future research

In the nutshell, the study has given an overview analysis of challenges and competitiveness of Malaysia's SMEs in a global business environment. Although it does not reflect the empirical study of SMEs in Malaysia, but at least it contributes an important study by adding more literature regarding SMEs from Malaysia perspective. Based on the limitation of the current research, the study provides few suggestions for future research. First, future research should consider a survey-based research in order to measure the competitiveness of Malaysia's SMESs in facing the global challenges. SMEs registered in the Ministry of International Trade and Industry (MATRADE) and Malaysian Industrial

Development Authority (MIDA) might be used as the sampling frame in the future study especially SMEs that listed in manufacturing activities. Second, the other data collection method such as in depth interview with the owners or managers of SMEs could also be employed in order to obtain more accurate information pertaining to SMEs issues and challenges.

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Table 1.1. Category of small and medium enterprises (SMEs)

Category	Sector	Definition
Micro Enterprises	Manufacturing, manufacturing related services and agriculture industries	Sales Turnover less than RM 250,000 OR less than 5 employees
	Services (including ICT) and primary agriculture	Sales Turnover less than RM 200,000 OR less than 5 employees
Small Enterprises	Manufacturing, manufacturing related services and agriculture industries	Sales Turnover between RM 250,000 to less than RM 10 million OR employees between 5 to 50
	Services (including ICT) and primary agriculture	Sales Turnover between RM 200,000 to less than RM 1 million OR employees between 5 to 19
Medium Enterprises	Manufacturing, manufacturing related services and agriculture industries	Sales Turnover between RM 10 million to RM 25 million OR employees between 51 to 150
	Services (including ICT) and primary agriculture	Sales Turnover between RM 1 million to RM 5 million OR employees between 20 to 50

Source: SMEinfo, Retrieved from: http://www.smeinfo.com.my

Table 1.2. Distribution of establishments by sector

Sector	No. of establishments	%
Manufacturing	85,946	5.0
Services	1,523,842	87.9
Agriculture	123,762	7.1
Total	1,733,550	100.0

Source: Department of Statistics, Malaysia, Retrieved from: www.statistics.gov.my

Study on the Small and Middle Enterprises Financing Mode

in Financial Crisis

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Abstract

With the further development of market economy, small and middle enterprises have been the important support for the economic developments of various countries. However, the financing difficulty has largely contrasted with the important contribution of small and middle enterprises for the national economic development. As viewed from the course of the development of small and middle enterprises in the world, the financing difficulty of small and middle enterprises in the world has been a true fact. After the financial crisis broke out, the financing difficulty of small and middle enterprises is increasingly being deepened, and the governments of various countries have adopted multiple measures to deal with this problem. In this article, by analyzing the different financing modes adopted by US, Japan and Euro countries under the economic situation of financial crisis, the proper financing mode in the present economic environment is expected to be found for effectively solving the problem of financing difficulty for small and middle enterprises.

Keywords: Small and middle enterprise, Market economy, Financial crisis

1. Small and middle enterprises financing modes of US in the financial crisis

1.1 Analysis of the development of small and middle enterprises financing modes of US

US is the representative country which mainly adopts the direct financing mode, assisting with indirect financing mode. Because of the economic system and the developed securities market, US offers the platform of direct financing for small and middle enterprises. The US Small Business Administration controls the constitutions of macro control policies and the investments of civil capitals for small and middle enterprises, and the government only leads and supervises the financing of small and middle enterprises.

1.1.1 Mode of direct financing

(1) Direct financing companies. The direct financing mode of US means the investments by the direct financing companies, i.e. the venture capital companies, and the attention of these companies is to offer financing service for small and middle enterprise, and these companies can acquire the preferential loans below 90 million dollars from the federal government for the development and technical updating of small and middle enterprises. From 1958 to 2007, the investment amount to small and middle enterprises has exceeded 13 billion dollars, and the amount of small and middle enterprises which have obtained the investments has exceeded 100 thousands. The main investment target of the venture capital companies includes those small and middle enterprises which have the courage to technical innovation but lack in capital supports and loans. For the development of high-technical small and middle enterprises, the function of these venture capital companies is crucial.

(2) Securities financing. Except for the main market of securities trading, the capital market of US with the multi-layer and all-round securities market and the bonds rating mechanism has the NASDAQ market and the counter trading market which can offer large numerous of opportunities for small and middle enterprise. Because the listing standards are lower than the main board of the stock market and the listing conditions of the counter trading market are looser, most rising and growing companies choose to list in the NASDAQ market.

1.1.2 Mode of indirect financing: loans from commercial banks

The interior accumulation of small and middle enterprises of US occupies 25%~85% in the long-term financing amount, and the proportion of commercial financing is not high, which is same with the financing of Chinese small and middle enterprises. The difference is that the mode that the US government leads the commercial financing institutions to loan to small and middle enterprise is to offer the guarantee funds by the policy financing institutions of small and middle enterprises. The US government only directly loan to those mall and middle enterprises with strong ability of technical

innovation and good development foreground, so the loan volume is very limited.

1.2 Analysis of the financing modes adopted by small and middle enterprises of US in financial crisis

When the domestic banks of US are reluctant of lend for small and middle enterprises, the government adopts the financing mode of credit mortgage guarantee to support small and middle enterprise, and the original policies are frequently broke. To stimulate the small and middle enterprises of US and reduce the financing difficulty of trading of small and middle enterprises, and force the loan banks to provide more powerful supports for small and middle enterprises, the Export-Import Bank of Washington which is the import credit guarantee institution supported by the government recently integrated FTP and SDAP (Sustainable Development Action Plan) to make the total guarantee amount acquired by the loan banks in the original frame to achieve 0.45 billion dollars.

This measure of US means that after giving more financing conveniences for small and middle export enterprises, the new frame can not only help them to establish reasonable stock repertory system, but offer the risk control ability.

2. Small and middle enterprises financing modes of Japan in the financial crisis

2.1 Analysis of the development of small and middle enterprises financing modes of Japan

Japan is the first country which constituted the support policies for small and middle enterprises, and in the long-term process when small and middle enterprises of Japan could benefit from these support policies, the perfect small and middle enterprises financing mode including direct financing, indirect financing, and credit supplement has been gradually established.

2.1.1 Mode of direct financing

The capital cost paid by large enterprises for direct financing is far less than small and middle enterprises, and the proportion of direct financing in the exterior financing of small and middle enterprises in Japan is small. There are following sorts. (1) Venture capital companies. They are invested by the government, civil institutions and local institutions, and their responsibility is to invest capitals for small and middle enterprises specially. The venture funds publicly issues bonds to the society, which is guaranteed by the venture capital companies, and the venture capital companies also invest or loan to venture funds. (2) Civil risk investment companies. They are similar with the venture investment funds of US, and they are composed by banks, securities companies and guarantee companies. (3) The second board markets (counter trading market, JASDAQ market). The establishment of the second board markets of Japan could solve the financing difficulty for Japan small and middle enterprises.

2.1.2 Mode of indirect financing

The indirect financing mode not only occupies very important status in the whole financing mode of small and middle enterprises in Japan, but also is the main form of exterior financing for small and middle enterprises in Japan. The governmental financial institutions and the civil financial institutions compose the indirect financing system for small and middle enterprises in Japan. The institutions which capitals or debt guarantee are offered by the government is called as the governmental financial institutions, and these institutions don't accept saving in principle, but individual financial institutions also accept a few private capitals, but their main capital sources are from the government. To support the development of small and middle enterprises, Japanese government specially established three financial institutions serving for small and middle enterprises, i.e. the financial treasure of small and middle enterprises, the financial treasure of national life, and the central treasure of commerce and industry. These three governmental financial institutions are divided and complemented each other, and serve for small and middle enterprise from different angles and approaches of financing. The loan transaction is charged by the financial treasure of small and middle enterprises and the financial treasure of national life, and the securities investment, exchange trading and other diversified services are charged by the central treasure of commerce and industry, and its responsibility is same with other commercial banks. The cause that small and middle enterprises with bigger scale choose the financial treasure of small and middle enterprises is that the loans offered by this institution emphasize the demands of small and middle enterprises with bigger scale, but small enterprises lean to the financial treasure of national life, because this institution can provide small turnover capital loans to maintain the production. The civil financial institution is composed by two departments. The non-professional financial institutions are composed by the city bank, the local bank and the mutual bank. The bank which develops their businesses surrounding many big cities such as Tokyo, Nagoya and Osaka is called as city banks. The business of local bank spreads all over whole Japan, and it is closely related with small and middle enterprises and local governments in different regions. The mutual bank is the predecessor of the second local bank which was turned into the common bank in 1989, and its operation inherits the tradition of the mutual bank.

2.1.3 Mode of credit guarantee

To disperse the risk, the double-guarantee mode is adopted in Japan, and the credit guarantee of small and middle enterprises is first evaluated by the guarantee operation association. The guarantee association which takes the guarantee of credit financing activity sequence of small and middle enterprises as the aim saves the loans in the

financial institutions, and promotes the increase of the guarantee loan businesses of small and middle enterprise by increasing the savings of financial institution. At the same time, the guarantee association requires the financial institutions to reduce the interest rate of guarantee loans by their savings in it.

2.2 Analysis of the financing modes adopted by small and middle enterprises of Japan in financial crisis

In the financial crisis, Japan used the mode combining the credit guarantee mode with the civil loan mode to relieve the financing difficulty of small and middle enterprises. The half-year report of Japanese policy financial treasure showed that because the business of its main operation object, small and middle enterprises, is deteriorated in the financial crisis, in the first half year after this financial institution is established, the loss of 6.68 billion dollars occurred. This financial treasure is the financial institution invested by the Japanese government. In the past term, to improve the financing status of small and middle enterprises, the government extended the credit guarantee system, and let the policy financial treasure to offer guarantees for the loans of small and middle enterprises. At the same time, to relieve the pressure of guarantee, Japanese government tried to promote the loans of civil financial institutions.

3. Small and middle enterprises financing modes of Europe in the financial crisis

3.1 Analysis of the development of representative small and middle enterprises financing modes of Europe

The financing mode of small and middle enterprises in Germany gives priority to the indirect financing mode, which is similar with the Japanese financing mode, but the proportion of interior financing of small and middle enterprises in Germany is bigger than the interior financing of Japan. Because of the occurrence of financial crisis after the World War II in Germany, large numerous of stocks of enterprises were forced to be purchased by commercial banks to commute bank loans, which further strengthened the association between banks and enterprises. Different with the "professional bank system" in other countries, the "universal bank system" of Germany is also called as the comprehensive bank system. German laws allowed commercial banks to deal with all financial activities in the securities market, such as offering the short-term commercial turnover loans, the middle and long-term loans of fixed assets, and the securities investments and entrusts. Because the operation range of commercial banks is wider, i.e. they can utilize the credit to create the stock options and the transaction of securities issue and securities underwriting, so only small space is leaved for the development of German securities market, and the banks which dominate the enterprises exist by the "universal" form. Contrastively, the German capital market with weak equity system is not developed, because the "universal" factor of banks makes enterprises more easily to obtain capitals from banks, and on the other hand, many problems such as higher cost, taxation and the opening of enterprise finance make enterprises would not to finance in the securities market.

The financing mode adopted by British is similar with US, and small and middle enterprises all depend on the developed capital market and financial market to finance. Because British government regulated that the securities issued by enterprises were limited by the lowest capital amount, so the proportion to issue capitals for financing is lower than US. The capital source of British small enterprises is mainly from two aspects, i.e. the own funds and the portfolios. Because the British government leads commercial banks and civil banks to invest for small and middle enterprises by the industrial investments with the public character, so the proportion of policy loan is very small.

3.2 Analysis of the financing modes adopted by small and middle enterprises of Europe in financial crisis

Since the beginning of 2009, many Europe large listed companies financed by increasing capital and stock or issuing bonds of small and middle enterprise to reply the financial crisis and solve the extremely urgency of seriously deficient own capitals. After the sign that the economy was stabilized just occurred, Europe stock markets rebounded universally, and enterprises showed strong financing desires to the financial market, so small and middle enterprises chose to finance in the market one after another. For example, in the last ten-day of March of 2009, British HSBC financed 14.5 billion Euros in the market by increasing issues in stocks, which is the largest single financing in Europe companies since this year. And the British Xstrata Group financed 4.4 billion Euros from the capital market in this year.

There are three important causes that Europe countries such as British and Germany adopted the debt financing and the equity financing. (1) Since the April of 2009, the stock market of Europe warms up, and there were about 60 large listed companied financed from the capital market according to relative statistics, and the financing speed of listed companies is quickening. (2) Investors' attitude has changed obviously, and in the initial of this year, the stock markets of Europe and US continued to descend following the depreciation tendency of last year, but when the stock markets warm up, the excessive pessimism emotion of the market has been changed largely, and investors though that the worst stage had already past, and they devoted capitals to the market again. Not only the stock market, but also other financial channels are changing, for example, the enterprise bond market is changed also, which is the good opportunity for small and middle enterprises to finance from the market. (3) Because banks universally frap loan conditions, so enterprises are more difficult to finance form the market. In the past two years, the loan conditions of Europe and US were relatively loose, and Europe enterprises accumulated mint debts, and to reduce the burden of loans and remedy the deficient capitals, Europe enterprises starved for flow capitals, so the financing in the stock and securities markets is possible and

convenient, which can fulfill enterprises' demands for a great lot capitals.

In above analysis, because of the differences various national situations and the developments of small and middle enterprises in different countries, various countries certainly would adopt different financing modes. However, because of the uncertainty and high interest rate of civil financing and the non-normative character of financing mode, in the present economic situation, the financing of small and middle enterprises would get in larger difficulty. Therefore, the mode of civil financing is not applicable for small and middle enterprise in present economic environment. But with the information enhancement of the public to the financial market and the enhancement of the financial institutions and banks' mortgage risk control ability for small and middle enterprises, the equity & bond financing mode and the mortgage guarantee financing mode can more effectively solve the financial difficulty for small and middle enterprises at the present stage.

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The Limits of Standard Risk and Macroeconomic Factors

in Explaining the Return Premia: Evidence

from the Tokyo Stock Exchange

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Abstract

This paper examines whether various factors suggested in standard finance can explain the excess returns of portfolios formed on size and book-equity-to-market equity (BE/ME) in Japan. First, we find that, unlike for the US, five risk factors, comprising the three Fama−French factors and the momentum and reversal factors of Chan et al. (1998, 2001), cannot adequately explain the return premia in Japan. Namely, statistically significant positive alphas were observed for the excess returns of all 25 Fama−French (1996) type portfolios, formed on the basis of size and BE/ME ratios. Second, the representative macroeconomic factors of Chen et al. (1986) cannot explain the positive alphas left unexplained by the five risk factors. Third, not only is there little contemporaneous relationship between the alphas left unexplained by the five risk factors and the representative macroeconomic factors of Chen et al. (1986) but also there is little evidence of any causal relationship between these macroeconomic factors and the alphas. Thus, for Japan, unlike for the US, well-known risk factors and macroeconomic factors cannot adequately explain the return premia.

Keywords: Book-to-market effect, Fama−French model, Jensen's alpha, Macroeconomic factors, Momentum, reversal, Size effect

1. Introduction

The behavioral finance literature, including Lakonishok et al. (1994), Daniel and Titman (1997), and Daniel et al. (2001) attacked the Fama and French (FF) (1993; 1996) model (Note 1), which is categorized as one of the standard finance models. This categorization reflects FF's (1993; 1996) explanation that because in their model, high-minus-low (*HML*) and small-minus-big (*SMB*) are the standard finance risk factors, which explain the risk premia uncaptured by the simplest traditional capital asset pricing model (CAPM), they should be the standard factors that explain equity returns within the field of standard finance.

In contrast to the above insistence, however, we should point out that the effectiveness of *SMB* and *HML* seems to be anomalous because they are derived from two kinds of anomalies, namely, the size and book-equity-to-market equity (BE/ME) anomalies.

Using US data, FF (1996) demonstrated that FF's three-factor model explains much of the cross-sectional return variation in portfolios formed on the basis of size and BE/ME. Subsequently, Chan et al. (2001) proposed a risk adjustment based on five risk factors, adding to the three FF factors the momentum factor of Jegadeesh and Titman (1993) and the reversal factor of DeBondt and Thaler (1985). Therefore, it appears that the three FF factors, when combined with the momentum and reversal factors, explain almost all excess return dispersion of common stock or equity portfolios in the US. On the basis of the evidence from FF (1996, 2006) and Chan et al. (2001), when the above five risk factors are applied, the Jensen's (1968) alphas of the excess returns of 25 FF (1996) type size- and BE/ME-sorted stock portfolios are zero in the US. (Note 2)

Why then is Jensen's alpha important here and should be focused on in our context of analysis? This is because FF (2006, p. 2174) themselves posited that "*In a CAPM world, the true intercepts in these regressions are zero.*", and FF (1996) also repeatedly tested whether alphas are zero in their model.

However, in contrast to the US evidence and FF's results, from an international perspective, (Note 3) in this paper, we demonstrate that the return premia dispersions of 25 size and BE/ME portfolios in Japan cannot be fully explained. That

is, for Japan, one cannot remove the positive alphas from the excess returns of 25 size and BE/ME portfolios, contrary to the findings of FF (1996) for the US.

This finding is robust even if we use not only the five risk factors mentioned above but also the representative macroeconomic factors suggested by Chen et al. (1986). (Note 4) Regarding this point, in another standard finance model, the arbitrage pricing model (APM) suggested by Ross (1976), stock returns are assumed to be generated from multiple unidentified factors. Then if a number of macroeconomic factors cannot contribute to explain the alphas unexplained by FF, momentum, and the reversal factors, then this situation also demonstrates the limits of the standard finance asset pricing models.

Based on the above introductory discussions, the objective of this paper is to examine the explanatory power of traditional risk and macroeconomic factors for the return premia of size and BE/ME portfolios in Japan. We note here that, in this paper, we do not intend to search for other effective explanatory factors for the Japanese stock market. Furthermore, we are unaware of any published international study that investigated common stock portfolios' alphas as comprehensively as ours for Japan.

The new findings contributed by this paper are summarized as follows. First, unlike the US evidence, for Japan, the five risk factors comprising the three FF factors and the momentum and reversal factors of Chan et al. (1998, 2001) cannot fully explain the excess stock portfolio returns in Japan. Namely, statistically significant positive alphas were observed for all 25 FF (1996) type portfolios, formed on size and BE/ME. More precisely, the above five risk factor model has a positive alpha of 876 basis points per year (73 basis points per month), and this value is economically significant.

Second, for Japan, the representative macroeconomic factors of Chen et al. (1986) also exhibit difficulty in capturing the positive alphas left unexplained by the five risk factors.

Third, not only is there little contemporaneous relationship between the alphas left unexplained by the five risk factors and the representative macroeconomic factors of Chen et al. (1986) but also there is little evidence of any causal relationship between these macroeconomic factors and the alphas. Hence, it also seems to be difficult to explain the return premia of portfolios formed on size and BE/ME in Japan by conditioning on macroeconomic information.

The rest of this paper is organized as follows. In Section 2, we describe the testing models and methodology. In Section 3, we describe the data used. In Section 4, we discuss the empirical results, and Section 5 provides an interpretation and implications. Section 6 concludes the paper.

2. Models and Methodology

We use four testing models in this paper. The first is the following FF (1993, 1996) model (1):

$$R_{i,t} - R_{f,t} = \alpha_i + b_i(R_{M,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + e_{i,t}, \tag{1}$$

where $R_{M,t} - R_{f,t}$ is the market factor, SMB_t is the small-minus-big factor, and HML_t is the high-minus-low factor of FF (1993, 1996).

The second model is the following risk adjusted model used by Chan et al. (2001):

$$R_{i,t} - R_{f,t} = \alpha_i + b_i(R_{M,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + w_i WML_t + d_i UMD_t + e_{i,t}, \tag{2}$$

where UMD_t and WML_t are the momentum and reversal factors constructed and used by Chan et al. (1998). They insisted that risk adjustment should be carefully conducted based on five factors in model (2).

The next two testing models use the macroeconomic factors of Chen et al. (1986). Namely, Model (3) is as follows:

$$ALPHA_{i,t} = \mu_i + \beta_i MPSA_t + \gamma_i UI_t + \delta_i DEI_t + \varsigma_i URP_t + \eta_i UTS_t + \varepsilon_{i,t}, \tag{3}$$

where $ALPHA_{i,t} \equiv R_{i,t} - R_{f,t} - b_i(R_{M,t} - R_{f,t}) - s_i SMB_t - h_i HML_t - w_i WML_t - d_i UMD_t$. Following Chen et al. (1986), the following variables are constructed by using Japanese data: macroeconomic factors of $MPSA$, the monthly growth rate of seasonally adjusted industrial production; UI, unanticipated inflation; DEI, the change in expected inflation; URP, the series for the risk premium (credit spreads); and UTS, the series for the term structure. (Details are provided in the next section.)

Finally, the fourth model is as follows:

$$ALPHA_{i,t} = \nu_i + \beta_i MPSA_t + \gamma_i UI_t + \delta_i DEI_t + \varsigma_i URP_t + \eta_i UTS_t + \vartheta_i CG_t + \kappa_i OG_t + \omega_{i,t}, \tag{4}$$

where the definition of $ALPHA_{i,t}$ is the same as that in model (3), and following Chen et al. (1986), the following variables are constructed by using Japanese data: CG, the growth rate in real per capita consumption; and OG, the growth rate in oil prices. (Details are also provided in the next section.)

3. Data

The data analyzed in this paper cover the sample period from October 1981 to April 2005 (Note 5) in Japan. Individual data series are described below, and their glossaries and definitions are summarized in Table 1.

3.1 Fama-French factors and momentum and reversal factors

First, we construct and use the three FF (1993) factors, Jegadeesh and Titman's (1993) momentum factor, and DeBondt and Thaler's (1985) reversal factor. The notation is as follows: risk-free percentage rate: R_f; market portfolio percentage return: R_M; FF's (1993) small-minus-big factor percentage return: *SMB*; FF's (1993) high-minus-low factor percentage return: *HML*; the momentum factor percentage return, constructed by following the method of Chan et al. (1998): *UMD*; the reversal factor percentage return, constructed by following the method of Chan et al. (1998): *WML*. (Note 6)

Following FF (1993, 1996), we also use the returns of 25 portfolios formed based on size and BE/ME ratios. Complete explanations of data sources and the methods used to construct the five factors, comprising the three FF factors and the momentum and reversal factors are in Appendix A.

3.2 Macroeconomic factors

Regarding the macroeconomic factors, we construct the factors of Chen et al. (1986) using Japanese data. First, by seasonally adjusting the monthly index of industrial production, which is from the Ministry of Economy, Trade, and Industry, we construct the seasonally adjusted series of industrial production, $IPSA(t)$. Then we construct the innovations (growth rates) (Note 7) of industrial production $MPSA(t)$ by computing the first difference of $IPSA(t)$ in logarithms: $MPSA(t) = \ln IPSA(t) - \ln IPSA(t-1)$.

For inflation, to derive an expected inflation series, we used the Fama and Gibbons (1984) methodology as used by Chen et al. (1986) and Hamao (1988). First, we define $I(t)$ as the monthly first-order log of the realized consumer price index (CPI), obtained from the Ministry of Internal Affairs and Communications, and define $E[\cdot \,|t]$ as the expectations operator, conditional on information held at the end of month t. Then, following Chen et al. (1986) and Hamao (1988), we define unanticipated inflation UI and the change in expected inflation DEI as follows: $UI(t) = I(t) - E[I(t)|t-1]$, $DEI(t) = E[I(t+1)|t] - E[I(t)|t-1]$. Constructing the series for $UI(t)$ and $DEI(t)$ requires the risk-free rate, R_f, for which we use the gensaki rate, obtained from the Japan Securities Dealers Association, for the period from October 1981 to May 1984, and use the one-month median rate of negotiable time certificates of deposit (CD), obtained from the Bank of Japan, for the period from June 1984 to April 2005. (Note 8)

Third, for the risk premiums (credit spreads), (Note 9) as did Chen et al. (1986), we use the spread between corporate bond yields and long-term government bond yields. However, because so few 'BAA and under' bonds have been issued in Japan, we calculate the series for this risk premium, URP, as $URP(t) = BD(t) - GB(t)$, where BD denotes the yield of the Nikkei Bond Index (long term) from Nikkei, Inc. and GB denotes the Japanese 10-year government bond yield from the Bank of Japan.

Fourth, for the term structure, also following Chen et al. (1986), we use the yield spread between long-term bonds and the risk-free rate, $UTS(t) = GB(t) - R_f(t-1)$.

Fifth, for consumption, we use time-series data on real consumption changes, *CG*, following Chen et al. (1986). *CG* is the innovation (growth rate) in real per capita seasonally adjusted private consumption and is constructed by dividing data on seasonally adjusted real consumption from the Government of Japan by the corresponding population estimates from the Ministry of Internal Affairs and Communications.

Following Chen et al. (1986), we measure innovations in oil prices, *OG*, by constructing the first difference in the logarithm of the domestic corporate goods price index (petroleum coal products) from the Bank of Japan. Summary statistics for the above risk factors and macroeconomic factors are in Appendix B.

4. Empirical Results

4.1 The limits of risk factors in explaining the return premia

With regard to the explanatory power of their three-factor model, FF (1996) insisted that the three-factor model captures much of the anomalous cross-sectional variation in average stock returns. To justify this, using US data, FF (1996) showed that, when applied to the excess returns of 25 portfolios formed by size and BE/ME ratios, the intercepts of model (1), were not statistically significantly different from zero.

To test the effectiveness of the FF model for Japan, we perform a parallel test by using Japanese data from October 1981 to April 2005. The results are shown in Table 2, and they are very different from those for the US. The 25 intercepts are all positive and statistically significant at the 1% level, except one, which is significant at the 5% level in a size-4 and BE/ME-2 portfolio. Furthermore, the average absolute value of the 25 intercepts is 0.72 percent (72 basis points) per month, and this figure is substantially larger than that for the US reported in Table I of FF (1996). In addition, the average adjusted R-squared from the 25 regressions is 0.83 for Japan, which is below the corresponding US value reported in Table I of FF (1996). Thus, unlike in the case of the US, the three-factor model of FF (1993) has unexplained positive excess returns; i.e., there are positive alphas for Japan, which average 8.64 percent (864 basis points) per year.

To examine the robustness of these estimated positive alphas for Japan, we incorporate into our analysis the momentum and reversal factors of Chan et al. (1998, 2001), *UMD* and *WML*. That is, we estimate regression (2) by using the 25 portfolio returns formed by size and BE/ME. The results reported in Table 3 are similar to the results from the three-factor model (1). All 25 intercepts are positive and statistically significant at the 1% level, except one that is significant at the 5% level, in a size-4 and BE/ME-2 portfolio. Furthermore, the average value of the 25 intercepts is 0.73 percent (73 basis points) per month. The average adjusted *R*-squared from the 25 regressions of 0.84 indicates that model (2) has little more explanatory power than the three-factor model (1). Hence, the momentum and reversal factors, *UMD* and *WML*, hardly contribute to eliminating the alphas that are left unexplained by the FF model for Japan.

Thus, our rigorous analysis shows that there are positive alphas for Japan. This suggests that Japan's dynamics in return premia differ from those of the US.

4.2 The limits of macroeconomic factors in explaining the return premia

In the preceding subsections, we obtained robust evidence of positive alphas in Japan. Hence, we here test the explanatory power of the macroeconomic factors used by Chen et al. (1986) on $ALPHA_{i,t} \equiv R_{i,t} - R_{f,t} - b_i(R_{M,t} - R_{f,t}) - s_i SMB_t - h_i HML_t - w_i WML_t - d_i UMD_t$. Specifically, we first estimate regression (3) using the five macroeconomic factors of Chen et al. (1986).

The regression results are reported in Table 4. There are slightly fewer statistically significant positive alphas than in models (1) and (2). Nevertheless, 24 positive alphas remain. In addition, only four of the coefficients of the five macroeconomic factors are statistically significant for *MPSA*, only two are statistically significant for *DEI*, only four are significant for *URP*, and only one is significant for *UTS*; the other cases of five macroeconomic factors explain none of the dynamics of the positive alphas in Japan. Furthermore, the adjusted *R*-squared values of the 25 regressions are quite low, as Table 4 shows. Thus, overall, there is little contemporaneous relation between the alphas and the five Japanese macroeconomic factors.

Next, for further analysis, by adding two factors for *CG* and *OG*, we estimate regression (4) by using the seven macroeconomic factors of Chen et al. (1986). The results are shown in Table 5. Again, there are slightly fewer statistically significant positive alphas than in models (1) to (3). However, as in model (3), 24 positive alphas remain. Also similarly to model (3), only four of the coefficients of the seven macroeconomic factors are statistically significant for *MPSA*, only two are statistically significant for *DEI*, only four are significant for *URP*, and only one is significant for *UTS* and *CG*. Therefore, neither of the two added macroeconomic factors can explain the dynamics of the positive alphas, except in only one case in which there is a weak statistically significant effect of *CG*. Furthermore, the adjusted *R*-squared values of the 25 regressions are again quite low, as Table 5 shows. Thus, overall, there is little contemporaneous relation between the alphas left unexplained by the risk factors and the seven Japanese macroeconomic factors.

What is then the nature of the intertemporal relationships between the macroeconomic factors and the positive alphas in Japan? To investigate the intertemporal relationships, in Table 6 we report the results for Granger causality from the seven macroeconomic factors to the average value of alphas left unexplained by the three FF factors, momentum factor, and reversal factor. As Table 6 shows, for the seven Chen et al. (1986) macroeconomic factors, there is evidence of only one causal relation from *MPSA* to the average alpha. This causality is recognized in all cases for lags 1 to 5 (Panel A to E).

On the basis of the results, to check the response direction of the shocks from *MPSA* to the average values of the 25 alphas, we show the impulse responses of the alpha to shocks from *MPSA* in Figure 1. Figure 1 shows that, in general, response directions from *MPSA* to the alphas are unstable for all lags and thus it is difficult to judge whether the effects of *MPSA* are positive or negative. Therefore, although a causal relation from *MPSA* to the alphas is apparent in Table 6, it would be difficult to use this information on the *MPSA* to forecast the direction of the movements in the alphas in Japan.

Therefore, given the results in Table 6 and Figure 1, we suggest that even if intertemporal relations are considered, macroeconomic information does not adequately explain the return premia of portfolios formed on size and BE/ME in Japan.

5. Interpretation and Implications

This section discusses the interpretation and implications of our results. First are the arguments regarding risk adjustments. As mentioned before, in the US, as Chan et al. (2001) suggested, when the five risk factors (three FF, momentum, and reversal factors) are applied, the risk adjustment for the excess stock returns is generally completed. However, as our evidence demonstrates, risk adjustment by the above five factors does not operate in Japan. Thus, as an important implication, if the returns of portfolios, sorted according to certain firm characteristics or accounting measures, exhibit the positive alphas after risk adjustment by the five factors as in Chan et al. (2001), we cannot judge that it is the evidence of the special additional return premia linked to those firm characteristics or accounting measures

in Japan.

Second, as far as we can judge by monthly data as in Chen et al. (1986), return premia show autonomous dynamics that are not strongly affected by the innovations of macroeconomic factors. Of course, we did not test all macroeconomic factors other than the traditional seven factors suggested by Chen et al. (1986); however, in a general sense, the evidence that numerous factors, namely five risk factors and seven macroeconomic factors, cannot explain the return premia in Japan contradicts the assumption of arbitrage pricing theory (APT) in standard finance theory. This is because in APT, stock returns are assumed to be generated by unidentified factors such as risk factors and/or macroeconomic factors.

Third, regarding *HML* and *SMB*, their economic meaning and roles are still unclear. Regarding this matter, FF (1996, p.77) wrote that "*FF (1993) interpret the average HML returns as a premium for a state-variable risk related to relative distress*". However, the economic meaning of *SMB* was not discussed in any existing studies. Furthermore, Lakonishok et al. (1994, p.1574) explained that "*value strategies appear to be no riskier than glamour strategies.*" This means that low-risk value premia, such as *HML*, do not fluctuate highly with the dynamics of the business cycle. If so, in bad times, *HML* does not behave badly like the distress risk factor but rather somewhat defensively against economic stagnation. If, as Lakonishok et al. (1994, p.1574) suggested, value premia have generally low risk, then high *HML* premia and their low risk are inconsistent with the risk-return trade-off paradigm, and this also contradicts standard finance theory.

6. Conclusions

In this paper, we examined whether one can explain the return premia of portfolios formed on size and BE/ME in Japan. We tested four models by using the five risk factors and the seven macroeconomic factors used by Chen et al. (1986). The three new findings obtained for Japan in this study are summarized as follows.

First, unlike in the US, the five risk factors, comprising the three FF factors and the momentum and reversal factors of Chan et al. (1998), cannot fully explain the return premia of portfolios formed on size and BE/ME in Japan. Statistically significant positive alphas were observed for all 25 FF (1996) type portfolios, which are formed on size and BE/ME.

Second, we found that the representative macroeconomic factors of Chen et al. (1986) also cannot adequately explain the positive alphas left unexplained by the five risk factors. Our results imply that, contemporaneously, economic forces do not seem to influence strongly the return premia of portfolios formed on size and BE/ME in Japan.

Third, not only is there little contemporaneous relationship between the alphas left unexplained by the five risk factors and the representative macroeconomic factors of Chen et al. (1986) but also there is little evidence of any causal relationship between these macroeconomic factors and the alphas. Thus, it seems difficult to explain the positive alphas in Japan by conditioning on macroeconomic information as well.

These empirical results represent new findings for Japan, which are surprisingly different from existing findings for the US. The fact that well-known risk factors and macroeconomic factors cannot fully explain the return premia of size and BE/ME-ranked portfolios in Japan clearly suggests the limits of standard asset pricing models in Japan. In future work, we should find different factors to explain the return premia in Japan; however, we emphasize that it is not our aim in this paper. Instead, we believe that a more important matter for us is to recognize the limits of standard asset pricing models in Japan.

Furthermore, our results imply that one must assess the existing evidence more carefully, including studies of international markets, to deepen our knowledge of interesting, but sometimes puzzling, financial market characteristics from a more international viewpoint.

Appendix A. Construction of Fama−French, Momentum, and Reversal Factors

The sample period of data for factor constructions is from October 1981 to April 2005. The individual data series are: the risk-free percentage rate, R_f; the market portfolio percentage return, R_M; Fama and French (FF)'s (1993) small-minus-big factor percentage return, *SMB*; FF's (1993) high-minus-low percentage return, *HML*; Chan et al.'s (1998) momentum factor percentage return, *UMD*; and Chan et al.'s (1998) reversal factor percentage return, *WML*.

First, R_f is the gensaki rate from the Japan Securities Dealers Association from October 1981 to May 1984 and the one-month median rate on negotiable-time certificates of deposit (CD) from the Bank of Japan from June 1984 to April 2005. This is because before June 1984, one-month CD rates are not available. Thus, following Hamao (1988), we specified the gensaki rate as the risk-free rate before June 1984.

Second, the market return R_M is the value-weighted return of all stocks in the Tokyo Stock Exchange (TSE) First Section, provided by the Japan Securities Research Institute (JSRI).

Third, the factor returns of *SMB* and *HML* for Japan are formed following FF (1993). Individual stock return data for the constructions of *SMB* and *HML* are the returns of stocks listed in the TSE First Section, and they are from JSRI. At the end of September each year *t* (from 1981 to 2004), TSE First Section stocks are first allocated to two groups, small

(S) or big (B), based on whether their September market equity (ME, stock price times shares outstanding) is below or above the median of ME for TSE First Section stocks. Next, TSE First Section stocks are allocated in an independent sort to three book-to-market equity (BE/ME) groups (low, medium, or high; L, M, or H) based on breakpoints for the bottom 30 percent, middle 40 percent, and top 30 percent of values of BE/ME for TSE First Section stocks, where BE is the book value of equity. The BE/ME ratio used to form portfolios in September of year t is the book common equity for the fiscal year $t-1$, divided by the market equity at the end of March in calendar year t. Following FF (1993), we do not use negative BE firms when calculating the breakpoints for BE/ME or when forming the size-BE/ME portfolios; and only firms with ordinary common equity are included in the tests. This means that Real Estate Investment Trusts (REITs) and units of beneficial interest are excluded. By these procedures, six size-BE/ME portfolios (S/L, S/M, S/H, B/L, B/M, B/H) are defined as the intersections of the two ME and three BE/ME groups. Value-weighted monthly returns on the portfolios are then calculated from the following October to the next September. We rebalance the portfolios every September following FF's (1993) suggestion: "*We calculate returns beginning in July of year t to be sure that book equity for year t−1 is known* (FF 1993, p.9)." In Japan, the fiscal year for most companies closes not at the end of December as in the US but at the end of March; that is, the end of the fiscal year in Japan is three months later than in the US. Thus, we calculate returns not from July but from October of year t to September of year $t+1$, after rebalancing portfolios in every September of year t, to be sure that book equity for the most recent fiscal year is known in the Japanese market. *SMB* is the difference, each month, between the average of the returns on the three small-stock portfolios (S/L, S/M, and S/H) and the average of the returns on the three big-stock portfolios (B/L, B/M, and B/H), while *HML* is the difference between the average of the returns on the two high-BE/ME portfolios (S/H and B/H) and the average of the returns on the two low-BE/ME portfolios (S/L and B/L). The 25 size-BE/ME portfolios also used for the analysis in this paper, are formed in a similar manner as the six size-BE/ME portfolios used to construct the *SMB* and *HML* factors.

Finally, regarding the momentum factor return, *UMD*, and the reversal factor return, *WML*, we followed Chan et al. (1998) for the construction using the Japanese data. In particular, for the construction of *UMD*, we first reformed portfolios every six months beginning in July of each year according to the attributes of the past seven months' returns, from seven months before to one month before (Chan et al. (1998) denoted this attribute $R(-7, -1)$), while for the construction of *WML*, we reformed portfolios every July, according to the attributes of the past 49 months' returns, from 60 months before to 12 months before (Chan et al. (1998) denoted this attribute $R(-60, -12)$). We note that Chan et al. (1998) formed portfolios every April to be sure that the information of the attributes (past returns, here) are known in the US market. As with the construction of *HML* and *SMB* above, we delayed the portfolio formation time by three months in our case, taking into consideration the above mentioned fact that the fiscal year in Japan generally ends three months later than in the US. In our portfolio construction, following Chan et al. (1998), we formed five portfolios by allocating the stocks with the lowest and highest values of the attributes to Portfolios 1 and 5, respectively. Using the above procedure, we obtain five portfolios ranked by the attribute $R(-7, -1)$ and five portfolios ranked by $R(-60, -12)$, respectively. The quintile breakpoints are obtained from the distribution of the attributes for the TSE First Section-listed stocks. Next, we compute the equally weighted return on each quintile portfolio; for $R(-7, -1)$-ranked portfolios, we calculate the subsequent six-month return, and for $R(-60, -12)$-ranked portfolios, we calculate the subsequent 12-month return. The mimicking portfolio returns, *UMD* and *WML* here, are then calculated each month: *UMD* is computed by deducting the calculated subsequent return of the lowest-$R(-7, -1)$ portfolio 1 from the return of the highest-$R(-7, -1)$ portfolio 5, and *WML* is calculated each month by deducting the subsequent return of the lowest-$R(-60, -12)$ portfolio 1 from the return of the highest-$R(-60, -12)$ portfolio 5, respectively.

Appendix B. Summary Statistics for Risk Factors and Macroeconomic Factors

	$R_{M,t}-R_{f,t}$	SMB	HML	WML	UMD	MPSA
Mean	0.221897	0.744121	0.661034	−0.591074	−0.107534	0.001292
Median	0.207750	0.931108	0.614312	−0.546000	0.367000	0.001063
Maximum	16.83492	20.72886	15.20494	14.10300	17.39500	0.041536
Minimum	−20.49162	−14.34414	−11.71550	−13.36600	−31.69700	−0.043788
Std. Dev.	5.475107	4.603124	3.329509	3.593877	5.046707	0.014068
Skewness	−0.013767	−0.235526	0.025603	0.037204	−1.033234	−0.106523
Kurtosis	3.933067	4.531289	5.358265	5.693192	9.556846	3.518973
	UI	DEI	URP	UTS	CG	OG
Mean	0.000124	−1.25E−05	0.300908	0.993287	0.172340	0.000438
Median	0.000187	−5.00E−06	0.266500	1.206000	−0.020252	0.000000
Maximum	0.016583	0.001057	1.366095	2.788182	3.274185	0.084518
Minimum	−0.009269	−0.000889	−0.280000	−2.092000	−3.681645	−0.116187
Std. Dev.	0.002796	0.000268	0.287258	0.942647	0.627371	0.020215
Skewness	0.783865	0.019108	0.667123	−0.785135	0.626256	−1.215999
Kurtosis	8.046193	4.604435	3.670478	3.602963	12.67757	12.27387

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Notes

Note 1. Lakonishok et al. (1994) questioned the risk-return trade-off of value stocks, and Daniel and Titman (1997) and Daniel et al. (2001) insisted that firm characteristics, rather than risk, are priced.

Note 2. Studies of the alphas of the excess returns of common stocks or equity portfolios are rare, mainly because when the FF model is applied to excess returns, the alphas of these assets are often close to zero for the US. Generally, therefore, most of the existing literature considers the alphas of mutual funds. This literature includes the studies of Brown et al. (1992), Grinblatt et al. (1995), Ferson and Schadt (1996), Gruber (1996), Carhart (1997), Chevalier and Ellison (1997), Daniel et al. (1997), Christopherson et al. (1998), Chen et al. (2000), Baks et al. (2001), Carhart et al. (2002), Pastor and Stambaugh (2002a, 2002b), Berk and Green (2004), Bollen and Busse (2005), Cohen et al. (2005), Jones and Shanken (2005), Busse and Irvine (2006), and Kosowski et al. (2006).

Note 3. The structure of the economy and of financial markets, the characteristics of investors' preferences, the pertinent degree of knowledge of monetary and financial issues, and the characteristics or creditworthiness of the financial systems differ between countries. For example, Hamao (1988) explained the differences in the US and Japanese bond markets. Brealey et al. (2006) argued that financial asset allocations generally differ in the US and Japan. Furthermore, Hoshi and Kashyap (2004) and Becht et al. (2003) discussed differences in the US and Japanese financial systems. Hence, we argue that these differences directly or indirectly produce different stock return structures in the US and Japan.

Note 4. Because Chen et al. (1986) is a very influential study on the macroeconomy and stock market, and their macroeconomic factors are considered to be important, their study was followed by a large number of related studies. These include Chen (1991), Ferson and Harvey (1991), Qi and Maddala (1999), Lamont (2001), Merville et al. (2001), Fifield et al. (2002), Flannery and Protopapadakis (2002), Mixon (2002), Griffin et al. (2003), Avramov (2002, 2004), Jagannathan and Wang (2002), Resnick and Shoesmith (2002), Smith and Wickens (2002), Conrad et al. (2003), Ewing et al. (2003), Goyal and Santa-Clara (2003), Lioui and Poncet (2003), Payne (2003), Scruggs and Glabadanidis (2003), Siddique (2003), Chelley-Steeley and Siganos (2004), Maringer (2004), Poitras (2004), Priestley and Odegaard (2004), Vassalou and Xing (2004), and Petkova (2006).

Note 5. This sample period is the longest period available for our analysis for Japan. Many researchers, such as Brealey et al. (2006) and Lundblad (2007) suggested that a longer sample period is better for deriving robust empirical results. Hence, in this paper we neither divide our sample period nor analyze the structural breaks in the portfolios.

Note 6. The *UMD* and *WML* factors were used by Chan et al. (2001) for a rigorous risk adjustment.

Note 7. Chen et al. (1986) used the term 'innovations' to mean (unanticipated) changes in, or growth rates of, economic variables. We also use the term 'innovations' in this sense.

Note 8. Data before June 1984 on one-month CD rates are not available. Thus, following Hamao (1988), we used the gensaki rate (yields on bonds traded with repurchase agreements) for the period before June 1984. The series for

$E[I(t)|t-1]$ (and $E[I(t+1)|t]$) were constructed as follows. First, according to Fisher (1965), $R_f(t-1)$ can be decomposed into two series, one for the expected real return for month t, $E[\rho(t)|t-1]$, and the other for the expected inflation rate, $E[I(t)|t-1]$, as follows: $R_f(t-1) = E[\rho(t)|t-1] + E[I(t)|t-1]$. Then, following Hamao (1988), we assume the following relationship, based on a first-order moving average process: $[R_f(t-1) - I(t)] - [R_f(t-2) - I(t-1)] = u(t) - \theta \cdot u(t-1)$. Given an estimate of θ, obtained by using the standard Box and Jenkins (1976) methodology, and given that $R_f(t-1) - I(t) = E[\rho(t)|t-1] + u(t)$, we obtain $E[\rho(t)|t-1] = [R_f(t-2) - I(t-1)] - \hat{\theta} \cdot u(t-1)$. Then, by using this series for $E[\rho(t)|t-1]$, we can obtain the series for $E[I(t)|t-1]$ (and that for $E[I(t+1)|t]$) from the equation $R_f(t-1) = E[\rho(t)|t-1] + E[I(t)|t-1]$. (See Hamao (1988), p.50 for details.)

Note 9. Although Chen et al. (1986) termed this variable the 'risk premium', it is in fact the so-called credit spread.

Table 1. Glossary and definition of variables

Notations	Contents and sources
Basic series	
I [Inflation]	Log relative of seasonally adjusted Japanese consumer price index (Statistics Bureau, Ministry of Internal Affairs and Communications)
R_f [Risk-free rate]	Yields of bond trade with repurchase agreement (Japan Securities Dealers Association, Hamao (1988), from October 1981 to May 1984) and the one-month median rate of the negotiable time certificate of deposit (CD) (Bank of Japan, from June 1984 to April 2005)
GB [Long-term government bond yield]	Japanese 10-year government bond yield (in percent) (Bank of Japan)
$IPSA$ [Industrial production]	Industrial production index during month, seasonally adjusted (Ministry of Economy, Trade and Industry)
BD [Bond index yield]	Yields of Nikkei Bond Index (long-term) in percent (Nikkei, Inc.)
R_M [Value-weighted equities]	Monthly return in percent of a value-weighted portfolio of the first section of TSE-listed stocks (Japan Securities Research Institute)
Derived series	
Panel A. Macroeconomic innovations	
$MPSA(t)$ [Industrial production monthly growth]	$\log[IPSA(t) / IPSA(t-1)]$
$E[I(t)]$ [Expected inflation]	Expected inflation in the sense of Fama and Gibbons (1984)
$UI(t)$ [Unexpected inflation]	$I(t) - E[I(t)|t-1]$ ($E[I(t)|t-1]$ was calculated in accordance with Hamao (1988), Fama and Gibbons (1984), and Chen et al. (1986))
$DEI(t)$ [Expected inflation change]	$E[I(t+1)|t] - E[I(t)|t-1]$ ($E[I(t+1)|t]$ and $E[I(t)|t-1]$ were calculated in accordance with Hamao (1988), Fama and Gibbons (1984), and Chen et al. (1986))
$URP(t)$ [Risk premium]	$BD(t) - GB(t)$ (yield difference in percent)
$UTS(t)$ [Term structure]	$GB(t) - R_f(t-1)$ (yield difference in percent)
$CG(t)$ [Consumption]	Growth rate in percent of real per capita seasonally adjusted private consumption (Real seasonally adjusted private consumption is from the Cabinet Office of the Government of Japan, and population estimates are from the Statistics Bureau, Ministry of Internal Affairs and Communications)
$OG(t)$ [Oil prices]	First difference in the logarithm of domestic corporate goods price index (petroleum coal products) (Bank of Japan)
Panel B. Fama and French's (1993) factors	
$R_M - R_f(t)$ [Market factor]	Monthly excess return in percent of a value-weighted portfolio of the first section of TSE-listed stocks
$SMB(t)$ [Small-minus-big factor]	Fama and French's (1993) small-minus-big factor percentage return
$HML(t)$ [High-minus-low factor]	Fama and French's (1993) high-minus-low factor percentage return
Panel C. Technical factors constructed by Chan et al. (1998)	
$UMD(t)$ [Momentum factor]	Momentum factor of Jegadeesh and Titman (1993) following the construction method of Chan et al. (1998)
$WML(t)$ [Reversal factor]	Reversal factor of DeBondt and Thaler (1985) following the construction method of Chan et al. (1998)

Table 2. Summary statistics and the results of the three-factor regressions for simple monthly percentage excess returns on 25 portfolios formed on size and BE/ME: the case of Japan, from October 1981 to April 2005 (283 months)

Size	Low	2	3	4	High	Low	2	3	4	High
					Book-to-market equity (BE/ME) quintiles					
				Panel A Summary statistics						
			Means					Standard Deviations		
Small	2.37	2.09	1.94	2.33	2.60	9.79	8.38	8.02	7.87	8.35
2	1.63	1.61	1.49	1.42	1.67	8.21	7.41	7.30	7.26	7.50
3	1.21	1.19	1.29	1.45	1.62	7.22	6.79	6.62	6.53	6.97
4	0.88	0.93	1.10	1.23	1.57	6.44	6.30	6.01	5.86	6.41
Big	0.25	0.57	0.76	1.05	1.33	6.36	6.04	5.39	5.77	5.67
				Book-to-market equity (BE/ME) quintiles						
Size	Low	2	3	4	High	Low	2	3	4	High
			Panel B Regression: $R_{i,t} - R_{f,t} = \alpha_i + b_i(R_{M,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + e_{i,t}$							
			α					$t(\alpha)$		
Small	1.26**	0.98**	0.88**	1.21**	1.27**	5.65	5.34	4.53	6.12	5.49
2	0.86**	0.70**	0.54**	0.41**	0.46**	4.47	4.22	3.49	2.92	3.17
3	0.76**	0.52**	0.52**	0.57**	0.55**	4.55	3.16	2.67	3.88	3.69
4	0.65**	0.41*	0.52**	0.59**	0.72**	3.69	2.36	3.32	3.61	4.58
Big	0.57**	0.74**	0.68**	0.88**	0.74**	3.60	4.68	4.79	5.59	4.99
			b					$t(b)$		
Small	1.05**	0.91**	0.88**	0.94**	0.96**	21.93	19.25	21.46	21.19	17.26
2	0.91**	0.92**	0.90**	0.93**	0.92**	16.15	22.14	18.03	26.04	17.00
3	0.93**	0.90**	0.85**	0.91**	0.90**	17.67	18.88	20.91	22.98	16.55
4	0.90**	0.94**	0.90**	0.87**	0.94**	16.51	17.30	16.70	16.57	19.16
Big	0.90**	0.94**	0.88**	0.95**	0.91**	22.09	27.57	24.69	23.88	24.91
			s					$t(s)$		
Small	1.38**	1.22**	1.13**	0.99**	1.05**	13.22	29.19	21.36	18.01	18.64
2	1.11**	0.93**	0.95**	0.92**	0.93**	13.66	24.99	25.68	30.52	22.05
3	0.73**	0.73**	0.75**	0.64**	0.75**	12.99	16.46	17.66	15.45	18.57
4	0.42**	0.45**	0.41**	0.41**	0.48**	9.21	11.31	7.98	9.98	11.40
Big	−0.08	−0.19**	−0.17**	−0.37**	−0.14**	−1.81	−5.02	−4.53	−6.40	−2.66
			h					$t(h)$		
Small	−0.24*	0.00	0.03	0.26**	0.51**	−2.51	−0.04	0.41	3.48	6.26
2	−0.40**	0.01	0.05	0.19*	0.48**	−3.28	0.17	0.77	2.43	8.03
3	−0.45**	−0.12	0.05	0.29**	0.46**	−5.36	−1.32	0.72	4.61	6.64
4	−0.43**	−0.03	0.11	0.21**	0.44**	−4.28	−0.35	1.87	3.03	6.01
Big	−0.70**	−0.36**	0.02	0.36**	0.74**	−12.02	−6.05	0.24	4.15	9.28
			Adj.R^2					$s(e)$		
Small	0.82	0.86	0.84	0.84	0.83	4.11	3.12	3.21	3.19	3.44
2	0.82	0.86	0.87	0.90	0.88	3.49	2.79	2.59	2.33	2.59
3	0.81	0.83	0.81	0.85	0.85	3.18	2.83	2.85	2.51	2.73
4	0.79	0.81	0.79	0.79	0.83	2.98	2.76	2.74	2.68	2.62
Big	0.83	0.83	0.80	0.82	0.81	2.59	2.45	2.43	2.46	2.46

Notes: *HML* denotes the high-minus-low factor, which is calculated using the Japanese data, of the Fama–French (1993) model, and *SMB* denotes the small-minus-big factor, which is calculated using the Japanese data, of the Fama–French (1993) model, respectively. *t* (coefficient) denotes the *t*-value of the coefficient, and the *t*-values are adjusted using the Newey–West (1987) heteroskedasticity and autocorrelation consistent covariance matrix. Adj.R^2 denotes adjusted *R*-squared value, and *s(e)* denotes standard error of the regression. ** and * attached to the coefficients denote the statistical significance of the coefficient at the 1% and 5% levels, respectively. The sample period is from October 1981 to April 2005.

Table 3. Five-factor regressions for simple monthly percentage excess returns on 25 portfolios formed on size and BE/ME: the case of Japan, from October 1981 to April 2005 (283 months)

Size	Book-to-market equity (BE/ME) quintiles									
	Low	2	3	4	High	Low	2	3	4	High
Regression: $R_{i,t} - R_{f,t} = \alpha_i + b_i(R_{M,t} - R_{f,t}) + s_iSMB_t + h_iHML_t + w_iWML_t + d_iUMD_t + e_{i,t}$										
	α					$t(\alpha)$				
Small	1.32**	0.99**	0.89**	1.23**	1.30**	5.68	5.36	4.50	6.14	5.61
2	0.90**	0.71**	0.56**	0.41**	0.48**	4.78	4.21	3.69	3.00	3.31
3	0.76**	0.52**	0.52**	0.57**	0.56**	4.70	3.27	2.79	3.89	3.78
4	0.64**	0.42*	0.53**	0.60**	0.73**	3.84	2.56	3.52	3.67	4.74
Big	0.58**	0.76**	0.69**	0.89**	0.76**	3.58	4.74	4.92	5.71	5.26
	b					$t(b)$				
Small	1.05**	0.92**	0.89**	0.94**	0.95**	22.57	19.68	23.11	21.58	18.73
2	0.90**	0.93**	0.91**	0.94**	0.92**	17.35	23.17	19.21	27.63	17.97
3	0.95**	0.91**	0.85**	0.92**	0.92**	19.94	20.24	21.84	23.48	17.69
4	0.92**	0.95**	0.90**	0.87**	0.95**	17.74	18.82	18.03	17.12	20.10
Big	0.91**	0.95**	0.89**	0.95**	0.91**	24.28	28.65	27.05	25.01	26.89
	s					$t(s)$				
Small	1.23**	1.21**	1.12**	0.95**	0.96**	16.39	27.32	17.48	18.87	17.65
2	1.01**	0.93**	0.95**	0.94**	0.89**	13.21	20.98	25.88	31.03	19.15
3	0.79**	0.78**	0.76**	0.65**	0.77**	13.67	17.29	17.75	15.40	19.16
4	0.49**	0.46**	0.40**	0.40**	0.48**	9.47	10.21	7.49	8.23	10.63
Big	−0.09	−0.23**	−0.18**	−0.40**	−0.17**	−1.54	−4.80	−4.53	−7.03	−3.20
	h					$t(h)$				
Small	−0.41**	0.05	0.14	0.23*	0.41**	−3.56	0.66	1.40	2.04	4.41
2	−0.51**	0.09	0.18**	0.31**	0.50**	−3.58	1.02	2.80	4.07	6.67
3	−0.19*	0.08	0.14	0.36**	0.64**	−2.13	0.85	1.65	4.94	9.32
4	−0.17	0.13	0.22**	0.26**	0.54**	−1.47	1.08	2.91	3.03	6.88
Big	−0.63**	−0.33**	0.09	0.34**	0.81**	−6.08	−4.13	1.04	3.48	10.19
	w					$t(w)$				
Small	−0.24*	0.08	0.15	−0.04	−0.15	−2.52	1.17	1.60	−0.41	−1.58
2	−0.16	0.11	0.18**	0.17**	0.03	−1.79	1.38	3.20	2.94	0.45
3	0.38**	0.28**	0.14	0.09	0.25**	4.12	3.83	1.88	1.39	4.26
4	0.37**	0.23**	0.15*	0.06	0.15*	4.15	2.86	2.15	0.90	2.06
Big	0.11	0.04	0.11	−0.03	0.10	1.29	0.68	1.47	−0.44	1.57
	d					$t(d)$				
Small	−0.26**	−0.05	−0.08	−0.08	−0.15*	−2.99	−1.52	−1.97	−1.69	−2.24
2	−0.15**	−0.06	−0.10*	−0.04	−0.11*	−2.95	−1.21	−2.04	−0.97	−2.16
3	−0.02	−0.01	−0.04	−0.02	−0.06	−0.51	−0.32	−0.78	−0.42	−1.25
4	0.00	−0.07	−0.08	−0.05	−0.05	−0.07	−1.74	−1.56	−1.32	−1.49
Big	−0.06	−0.12**	−0.08	−0.07	−0.10*	−1.44	−2.94	−1.89	−1.78	−2.05
	Adj.R^2					$s(e)$				
Small	0.84	0.86	0.84	0.84	0.84	3.93	3.11	3.17	3.18	3.38
2	0.83	0.86	0.88	0.90	0.88	3.42	2.76	2.51	2.28	2.55
3	0.82	0.84	0.82	0.85	0.86	3.04	2.75	2.83	2.50	2.64
4	0.81	0.82	0.80	0.79	0.84	2.84	2.68	2.69	2.67	2.58
Big	0.84	0.84	0.80	0.82	0.82	2.57	2.39	2.39	2.45	2.40

Notes: HML denotes the high-minus-low factor, which is calculated using the Japanese data, of the Fama–French (1993) model, and SMB denotes the small-minus-big factor, which is calculated using the Japanese data, of the Fama–French (1993) model, respectively. WML denotes the reversal factor, which is calculated using the Japanese data, of Chan et al. (1998), and UMD denotes the momentum factor, which is calculated using the Japanese data, of Chan et al. (1998), respectively. t (coefficient) denotes the t-value of the coefficient, and the t-values are adjusted using the Newey–West (1987) heteroskedasticity and autocorrelation consistent covariance matrix. Adj.R^2 denotes adjusted R-squared value, and $s(e)$ denotes standard error of the regression. ** and * attached to the coefficients denote the statistical significance of the coefficient at the 1% and 5% levels, respectively. The sample period is from October 1981 to April 2005.

Table 4. Five-macroeconomic-factor regressions for the monthly percentage alphas of 25 portfolios based on size and BE/ME: the case of Japan, from October 1981 to April 2005 (283 months)

Size	Book-to-market equity (BE/ME) quintiles									
	Low	2	3	4	High	Low	2	3	4	High

Regression: $ALPHA_{i,t} = \mu_i + \beta_i MPSA_t + \gamma_i UI_t + \delta_i DEI_t + \zeta_i URP_t + \eta_i UTS_t + \varepsilon_{i,t}$

Size	μ					$t(\mu)$				
Small	0.94**	1.03**	0.70*	0.75*	0.74	2.69	3.17	2.28	2.46	1.62
2	0.85*	0.58*	0.88**	−0.01	0.30	2.54	2.11	2.95	−0.03	1.12
3	0.66*	0.00	0.30	0.62*	0.29	2.46	0.00	1.12	1.99	1.12
4	0.54	0.42	0.63*	0.57*	0.53	1.80	1.61	2.54	2.12	1.87
Big	0.09	0.84**	0.67**	0.73**	0.39	0.44	2.64	2.80	3.02	1.59

Size	β					$t(\beta)$				
Small	7.47	7.98	14.52	15.35	10.31	0.65	0.79	1.57	1.44	0.96
2	−3.73	11.47	13.03	16.15 *	15.62*	−0.47	1.65	1.68	2.47	2.30
3	17.97	9.65	11.41	−4.20	12.89	1.91	1.15	0.96	−0.61	1.54
4	17.76 *	9.76	6.24	2.34	12.05	2.26	1.31	0.89	0.31	1.53
Big	10.74	9.45	5.19	12.69 *	6.28	1.29	1.51	0.87	2.11	0.90

Size	γ					$t(\gamma)$				
Small	−97.51	−84.34	−60.47	−114.68	−54.80	−1.10	−1.06	−0.57	−1.64	−0.66
2	132.65	−0.24	−5.37	−103.15	33.47	1.54	0.00	−0.07	−1.75	0.43
3	25.35	36.98	−60.10	−28.68	118.14	0.28	0.38	−0.65	−0.36	1.28
4	87.52	119.05	−15.87	76.77	114.39	0.95	1.43	−0.18	0.83	1.28
Big	50.81	−17.45	29.96	−85.98	−9.70	0.70	−0.25	0.48	−1.09	−0.15

Size	δ					$t(\delta)$				
Small	1203.37	641.03	−198.17	−426.07	−853.90	1.21	0.65	−0.13	−0.59	−0.75
2	−731.14	−114.86	−334.68	253.86	21.09	−1.02	−0.13	−0.42	0.38	0.03
3	996.23	−631.29	85.48	−714.28	−1639.73	1.24	−0.68	0.11	−0.75	−1.83
4	−1160.08	−1846.74*	−857.97	−826.84	−1303.61	−1.21	−2.53	−0.96	−0.83	−1.34
Big	−1564.75*	481.93	−691.69	498.74	341.23	−2.05	0.55	−0.93	0.75	0.49

Size	ζ					$t(\zeta)$				
Small	0.14	0.19	1.02	1.17	2.18*	0.17	0.24	1.52	1.77	2.45
2	−0.08	0.58	−0.19	1.17*	0.48	−0.14	0.97	−0.31	2.48	0.74
3	0.33	1.74*	0.94	0.08	0.63	0.59	2.52	1.49	0.15	1.24
4	0.37	0.09	−0.18	0.16	0.38	0.60	0.15	−0.34	0.26	0.69
Big	1.30*	0.14	0.17	0.60	0.93	2.32	0.31	0.31	1.09	1.86

Size	η					$t(\eta)$				
Small	0.36	−0.08	−0.13	0.11	−0.11	1.74	−0.49	−0.74	0.67	−0.49
2	0.05	−0.06	−0.28*	0.06	0.01	0.32	−0.37	−2.01	0.51	0.10
3	−0.01	−0.03	−0.07	−0.06	0.03	−0.04	−0.20	−0.52	−0.44	0.21
4	−0.06	−0.07	−0.07	−0.04	0.04	−0.51	−0.54	−0.48	−0.34	0.29
Big	0.05	−0.13	−0.05	−0.02	0.08	0.47	−0.71	−0.39	−0.19	0.62

Size	Adj.R^2					$s(\varepsilon)$				
Small	−0.01	−0.01	0.00	0.02	0.03	3.91	3.10	3.14	3.12	3.30
2	−0.01	−0.01	0.00	0.03	0.00	3.41	2.75	2.48	2.23	2.53
3	0.01	0.02	0.00	−0.01	0.01	3.00	2.70	2.81	2.49	2.61
4	0.00	0.00	−0.01	−0.01	0.00	2.81	2.65	2.68	2.67	2.56
Big	0.03	−0.01	−0.01	0.00	0.00	2.51	2.38	2.38	2.42	2.38

Notes: $ALPHA_{i,t}$ is defined as $R_{i,t} - R_{f,t} - b_i(R_{M,t} - R_{f,t}) - s_i SMB_t - h_i HML_t - w_i WML_t - d_i UMD_t$. Macroeconomic factors are *MPSA*: monthly growth rate of seasonally adjusted industrial production; *UI*: unanticipated inflation; *DEI*: the change in expected inflation; *URP*: the series for the risk premium (credit spreads); and *UTS*: the series for the term structure. These variables were constructed by following Chen et al. (1986) from Japanese data. *t* (coefficient) denotes the *t*-value of the coefficient, and the *t*-values are adjusted by using the Newey−West (1987) heteroskedasticity and autocorrelation consistent covariance matrix. Adj.R^2 denotes the adjusted *R*-squared value, and $s(\varepsilon)$ denotes the standard error of the regression. ** and * denote the statistical significance of the coefficient at the 1% and 5% levels, respectively. The sample period is from October 1981 to April 2005.

Table 5. Seven-macroeconomic-factor regressions for the monthly percentage alphas of 25 portfolios based on size and BE/ME: the case of Japan, from October 1981 to April 2005 (283 months)

	Book-to-market equity (BE/ME) quintiles									
Size	Low	2	3	4	High	Low	2	3	4	High
	Regression: $ALPHA_{i,t} = v_i + \beta_i MPSA_t + \gamma_i UI_t + \delta_i DEI_t + \zeta_i URP_t + \eta_i UTS_t + \theta_i CG_t + \kappa_i OG_t + \omega_{i,t}$									
	v					$t(v)$				
Small	1.01**	1.05**	0.79**	0.81*	0.80	2.88	3.23	2.66	2.40	1.69
2	0.72*	0.61*	0.91**	−0.07	0.32	2.07	2.10	3.05	−0.28	1.17
3	0.63*	0.14	0.36	0.67*	0.33	2.22	0.51	1.28	2.13	1.24
4	0.52	0.49	0.74**	0.64*	0.61*	1.71	1.71	2.82	2.17	2.09
Big	0.04	0.89**	0.67**	0.80**	0.35	0.19	2.70	2.66	3.30	1.45
	β					$t(\beta)$				
Small	7.32	7.45	14.48	15.72	9.76	0.63	0.73	1.57	1.47	0.90
2	−5.31	12.23	13.35	15.66 *	16.14 *	−0.67	1.74	1.63	2.38	2.33
3	17.01	10.94	11.98	−3.80	13.68	1.76	1.30	0.98	−0.54	1.66
4	18.00 *	10.28	7.13	2.88	13.34	2.25	1.34	1.00	0.38	1.67
Big	10.18	9.96	5.46	12.36 *	5.61	1.20	1.58	0.95	1.98	0.80
	γ					$t(\gamma)$				
Small	−104.05	−86.94	−68.61	−119.27	−61.14	−1.17	−1.08	−0.68	−1.68	−0.77
2	141.80	−1.83	−7.61	−98.38	32.25	1.51	−0.02	−0.10	−1.57	0.41
3	25.67	26.53	−64.43	−33.30	116.01	0.28	0.30	−0.72	−0.44	1.28
4	89.74	113.92	−24.21	71.88	109.12	0.96	1.44	−0.30	0.81	1.29
Big	54.64	−20.92	30.78	−92.33	−7.16	0.72	−0.30	0.48	−1.23	−0.10
	δ					$t(\delta)$				
Small	1279.31	833.29	−154.92	−537.72	−641.59	1.25	0.84	−0.11	−0.74	−0.60
2	−215.78	−373.08	−435.62	406.32	−152.80	−0.29	−0.42	−0.47	0.58	−0.19
3	1327.55	−1039.52	−97.88	−838.42	−1906.76*	1.54	−1.10	−0.12	−0.84	−2.10
4	−1251.47	−2009.53*	−1136.02	−995.60	−1733.43	−1.24	−2.37	−1.23	−1.00	−1.61
Big	−1383.19	316.96	−787.64	635.12	563.49	−1.83	0.35	−1.00	0.86	0.77
	ζ					$t(\zeta)$				
Small	0.05	0.12	0.92	1.14	2.07*	0.07	0.16	1.37	1.66	2.28
2	−0.09	0.61	−0.20	1.20*	0.51	−0.14	1.01	−0.33	2.54	0.77
3	0.26	1.70*	0.93	0.05	0.66	0.47	2.52	1.47	0.10	1.29
4	0.41	0.07	−0.22	0.14	0.40	0.69	0.11	−0.41	0.22	0.77
Big	1.31*	0.14	0.20	0.50	0.92	2.35	0.30	0.36	0.97	1.84
	η					$t(\eta)$				
Small	0.37	−0.06	−0.12	0.10	−0.08	1.89	−0.36	−0.77	0.62	−0.37
2	0.11	−0.09	−0.29*	0.08	−0.01	0.67	−0.57	−2.02	0.64	−0.06
3	0.04	−0.07	−0.09	−0.08	0.00	0.24	−0.51	−0.70	−0.53	−0.03
4	−0.08	−0.09	−0.09	−0.06	−0.01	−0.62	−0.65	−0.70	−0.47	−0.08
Big	0.07	−0.14	−0.06	0.00	0.11	0.65	−0.82	−0.49	−0.02	0.85
	θ					$t(\theta)$				
Small	−0.29	−0.09	−0.37	−0.23	−0.26	−0.93	−0.35	−1.25	−0.67	−0.84
2	0.51	−0.12	−0.12	0.25	−0.09	1.27	−0.40	−0.51	1.17	−0.33
3	0.07	−0.56*	−0.23	−0.24	−0.14	0.20	−2.03	−0.95	−1.23	−0.56
4	0.09	−0.27	−0.44	−0.26	−0.32	0.37	−1.02	−1.69	−1.12	−1.27
Big	0.21	−0.19	0.02	−0.27	0.16	0.80	−0.75	0.09	−1.01	0.71
	κ					$t(\kappa)$				
Small	−10.68	−11.33	−11.04	−0.27	−16.41	−0.79	−1.03	−0.91	−0.03	−1.14
2	−12.25	9.51	1.90	−1.30	6.24	−1.58	1.19	0.17	−0.31	0.89
3	−14.13	6.11	3.15	0.24	9.28	−1.78	0.76	0.34	0.03	1.25
4	6.50	1.35	2.78	1.88	12.88	0.82	0.14	0.38	0.24	1.74
Big	−3.63	3.31	5.11	−13.11	−6.86	−0.52	0.49	0.68	−1.19	−0.80
	Adj.R^2					$s(\omega)$				
Small	−0.01	−0.01	0.01	0.01	0.04	3.91	3.10	3.13	3.13	3.29
2	0.00	−0.01	0.00	0.03	0.00	3.40	2.75	2.49	2.23	2.53
3	0.01	0.03	0.00	−0.01	0.01	3.00	2.69	2.81	2.49	2.61
4	0.00	0.00	0.00	−0.02	0.01	2.82	2.66	2.67	2.67	2.55
Big	0.02	−0.01	−0.02	0.01	0.00	2.52	2.38	2.39	2.41	2.38

Notes: $ALPHA_{i,t}$ is defined as $R_{i,t} - R_{f,t} - b_i(R_{M,t} - R_{f,t}) - s_i SMB_t - h_i HML_t - w_i WML_t - d_i UMD_t$. Macroeconomic factors are *MPSA*: monthly growth rate of seasonally adjusted industrial production; *UI*: unanticipated inflation; *DEI*: the change in expected inflation; *URP*: the series for the risk premium (credit spreads); *UTS*: the series for the term structure; *CG*: growth rate in real per capita consumption; and *OG*: growth rate in oil prices. These variables were constructed by following Chen et al. (1986) from Japanese data. *t* (coefficient) denotes the *t*-value of the coefficient, and the *t*-values are adjusted by using the Newey−West (1987) heteroskedasticity and autocorrelation consistent covariance matrix. Adj.R^2 denotes the adjusted *R*-squared value, and $s(\omega)$ denotes the standard error of the regression. ** and * denote the statistical significance of the coefficient at the 1% and 5% levels, respectively. The sample period is from October 1981 to April 2005.

Table 6. Test results for Granger causality from seven macroeconomic factors to the alphas left unexplained by the three Fama−French factors, momentum factors, and reversal factors

	MPSA	*UI*	*DEI*	*URP*	*UTS*	*CG*	*OG*
Panel A Lag=1							
F-statisitc	10.761**	1.474	2.340	0.067	0.000	0.106	0.498
p-value	0.001	0.226	0.127	0.795	0.986	0.746	0.481
Panel B Lag=2							
F-statisitc	5.367**	1.115	1.253	0.276	0.172	0.688	0.277
p-value	0.005	0.329	0.287	0.759	0.842	0.503	0.758
Panel C Lag=3							
F-statisitc	3.898**	0.877	0.948	0.237	0.286	0.714	2.615
p-value	0.009	0.454	0.418	0.871	0.835	0.545	0.052
Panel D Lag=4							
F-statisitc	2.944*	1.108	0.926	0.283	0.263	0.556	1.927
p-value	0.021	0.353	0.449	0.889	0.901	0.695	0.106
Panel E Lag=5							
F-statisitc	3.132**	1.260	1.047	0.122	0.241	0.486	1.453
p-value	0.009	0.282	0.391	0.987	0.944	0.786	0.206

Notes: $ALPHA_{i,t}$ is defined as $R_{i,t}-R_{f,t}-b_i(R_{M,t}-R_{f,t})-s_iSMB_t-h_iHML_t-w_iWML_t-d_iUMD_t$. The *F*-statisitc for testing for Granger causality, with the null hypothesis being that there is no causal relationship between the two variables, is displayed. ** and * denote statistically significant rejection of the null hypothesis at the 1% and 5% levels, respectively. The tests were conducted for the sample period from October 1981 to April 2005. Macroeconomic factors are *MPSA*: monthly growth rate of seasonally adjusted industrial production; *UI*: unanticipated inflation; *DEI*: the change in expected inflation; *URP*: the series for the risk premium (credit spreads); *UTS*: the series for the term structure; *CG*: growth rate in real per capita consumption; and *OG*: growth rate in oil prices. These variables were constructed by following the methodology of Chen et al. (1986) from Japanese data.

Panel A. Responses of the alphas to a shock to MPSA: derived from the VAR(1) model
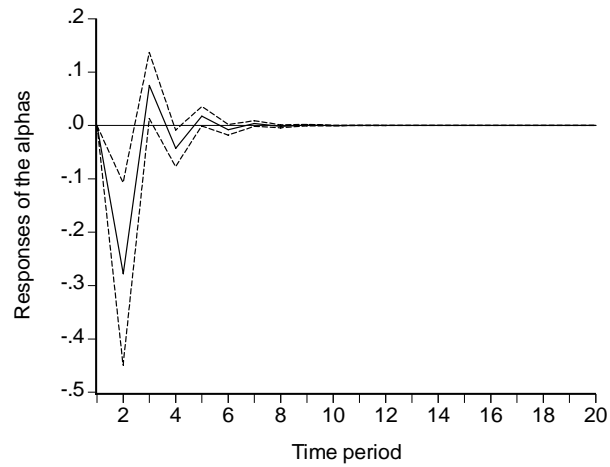
Panel B. Responses of the alphas to a shock to MPSA: derived from the VAR(2) model
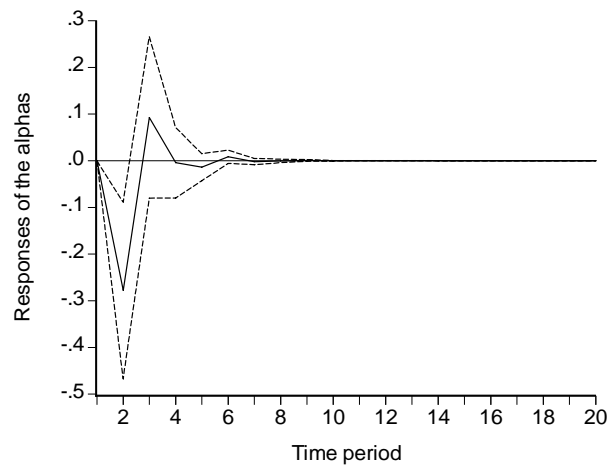
Panel C. Responses of the alphas to a shock to MPSA: derived from the VAR(3) model
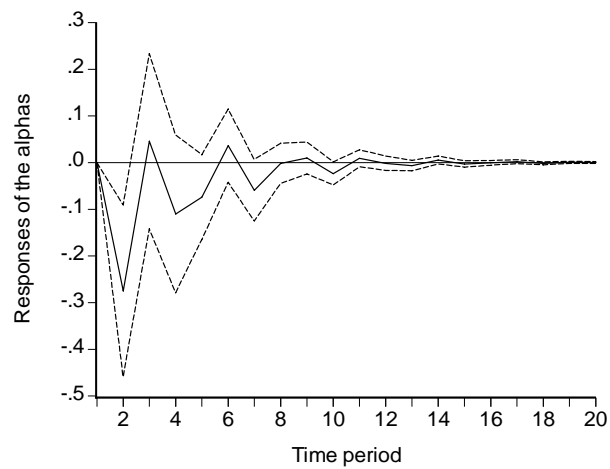
Panel D. Responses of the alphas to a shock to MPSA: derived from the VAR(4) model
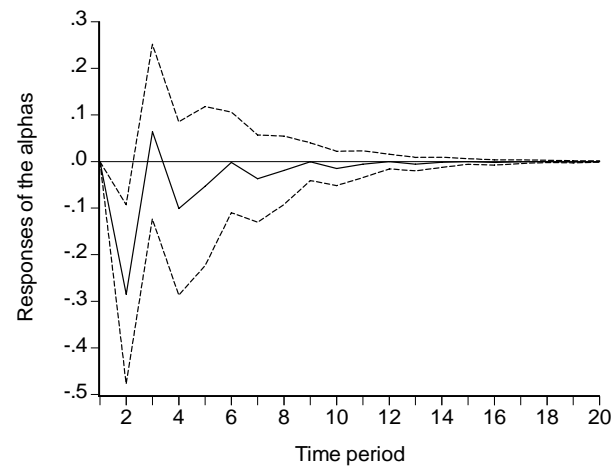
Panel E. Responses of the alphas to a shock to MPSA: derived from the VAR(5) model
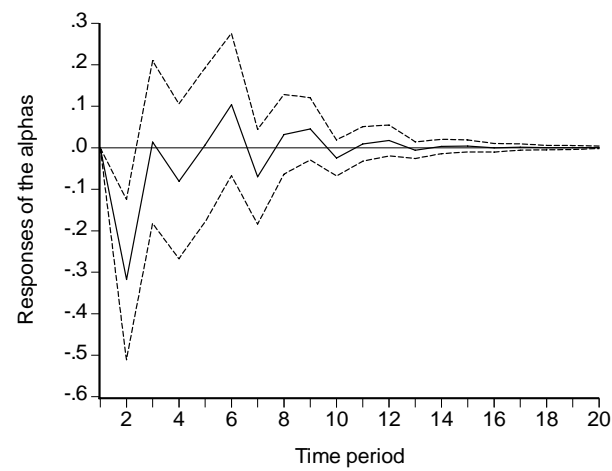
Panel F. Responses of the alphas to a shock to MPSA: derived from the VAR(6) model
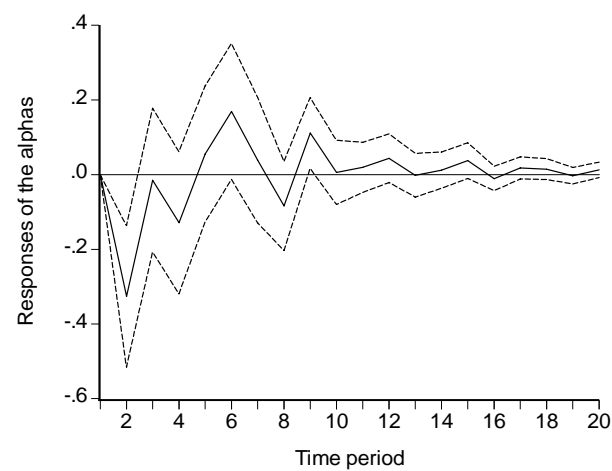
Figure 1. Impulse responses of the alphas left unexplained by the three Fama−French factors and momentum and reversal factors to a shock to industrial production in Japan

Cultural Variability in Web Content: A Comparative Analysis of American and Turkish Websites

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Abstract

The objective of this article is to investigate the extent of differentiation of web communication on cultural grounds. For this purpose, US based Fortune 500 companies' domestic websites and their Turkish counterparts were culturally examined. Through a content analysis, the reflections of Hofstede's (1980) and Hall's (1976) cultural dimensions on the website content of the selected 88 websites were investigated. In general, significant differences were found in the depiction of cultural values on the websites examined. The results of this study provide implications for global companies in their attempts to culturally adapt their websites to local markets, in particular to Turkey.

Keywords: Website content, Cultural adaptation, Cultural dimensions, Turkey, USA

1. Introduction

During recent decades, internet has become increasingly important for companies that carried their operations to web base. The prospects of connecting with a vast number of consumers throughout the world at comparably lower costs enhanced the attractiveness of internet. The rise of the internet as a globally accessible communication medium presents new challenges for multinational companies given that they may need to adjust their communication tools based on cultural differences. Especially in web communication, attuning to local climate is necessary to enhance the impact of on line sources. In this respect, cultural adaptation has become a vital strategy for companies that desire to succeed beyond borders.

The purpose of this study is to investigate the ways web communication differentiates on cultural grounds and to explore how companies reach local customers. In particular, using Hofstede's (1980) and Hall's (1970) cultural dimensions, the extent of adaptation on US and Turkish company websites will be investigated.

The remainder of the article is organized as follows. The next section reviews the literature on cultural models. Then, the framework for examining website content is developed. Following that, the statistical analysis conducted for this study is explained in detail. Finally, the findings of the study are disclosed and concluding remarks are made with managerial implications.

2. Theroretical background

Culture has always been a vital element for the study of international businesses (Kabasakal *et al.*, 2006). In the literature, several theorists have proposed that cultures vary along different dimensions. Among them, Hofstede's (1980/1984) and Hall's (1976/1981) cultural typologies have been extensively used in cultural studies.

According to Hofstede (1980), national cultures differ along four main criteria which are power distance, uncertainty avoidance, masculinity-femininity and individualism-collectivism. Among these dimensions, power distance indicates

the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally. Uncertainty avoidance dimension indicates the extent to which society feels threatened by uncertain situations and tries to avoid them. While masculine values emphasize assertiveness and acquisition of money, feminine values are on the opposite side of the continuum. Individualist societies like Western societies emphasize individual initiative and prestige, whereas collectivistic societies like Eastern societies value communal well-being and harmony.

In his study, Hofstede (1980) depicted the cultural maps of the world by using data from 40 countries. From his work, one can find out the relative position of these 40 countries on the four dimensions. According to these maps, while Unites States rates relatively low in power distance and uncertainty avoidance dimensions, it rates high in individualism and masculinity dimensions. On the other hand, Turkey rates high in power distance, uncertainty avoidance, collectivism dimensions as well as relatively high in feminine dimension.

On the other hand, Hall (1976) proposed that cultures also differ in the extent to which contextual information is important for effective and satisfying communication. Hall (1976) categorized cultures as high- and low-context based on dimensions of communication and understanding.

According to Hall (1976), in high-context cultures communication is comprised of simple messages with deep meaning. High-context communication tends to be more indirect and more formal. While high-context communication is fast, efficient, and satisfying, time must be devoted to the formulation of the language to be high-context. The tendency in high context cultures is to provide less information in the verbal part of the message. This is in line with the generally accepted rule that what is not being said can carry more meaning than what is being said. In contrast, low-context cultures value facts and directness. Communication is expected to be straightforward, concise, and efficient in describing what action is expected. In low-context cultures, detailed and comprehensive information is vested in the message with explicit words and sentences.

In high-context, typically Eastern cultures, communication depends on the external environment, situational factors, and non-verbal behaviour. Message meanings are derived primarily from context. In contrast, in low-context, typically Western cultures, the meaning of a given communication comes directly through verbal channels. Hall (1976) pointed out that although no culture exists exclusively at either end of the scale, some cultures can be classified as high while others are considered low. In line with Hall's study (1976) examples of high-context communications can be found in Turkish culture while examples of low-context communications can be found in American culture.

In this study, we expect to observe the manifestation of the specific cultural characteristics of Turkish and American cultures in the selected company websites. In particular, we expect to see US websites to reflect more individualistic, masculine, low-context cultural characteristics; while their adapted Turkish counterparts reflect more power distance, uncertainty avoidance, collectivist, feminine and high-context cultural features.

3. Framework for Analysis

In this study Hofstede's (1980) and Hall's (1976) cultural dimensions were used to construct the basis of a comparative analysis. In order to be able to compare the web site content of US and Turkish companies, the first step was to establish website features representing the cultural typologies. Therefore, a review of literature was made with a focus on studies investigating reflections of cultural typologies in communication domain (Cheng and Schewitzer, 1996; Ju-Pak, 1999; Singh et al., 2003; Zhao et al., 2003; Okazaki, 2004). Based on this review, a wide range of website features, which have qualities corresponding to the cultural traits, were determined. Secondly, a focus group study was conducted among six graduate students in order to explore website attributes and applications of cultural traits. As a result, a number of website features were specified. Next, the authors judged generality and measurability of these features. Using a random sample of US company websites and their Turkish counterparts, the operationalization of cultural traits was tested. It was seen that the items representing power distance dimension of Hofstede (1980) such as company organization charts, employee titles and information about the CEO, weren't found in any of Turkish websites. Thus, this dimension was excluded from the analysis. Apart from that, some of the items were removed since they overlapped with others in order to achieve parsimony. As a result, a list of fourteen web features representing Hofstede's three cultural dimensions and Hall's context dimension in web communication was developed. These are provided in Table 1. A description of the cultural dimensions and of the operational categories is provided below.

Uncertainty Avoidance: High uncertainty avoidance cultures tend to avoid ambivalent circumstances (Hofstede, 1980); they tend to seek for as much information as possible in order to reduce unpredictability. Therefore, we expect that the presence of site maps and search tools will be common in Turkish websites. Parallel to that, we expect Turkish websites to present a thorough company history in order to build a trustworthy image. Moreover, high uncertainty avoidance societies are generally risk averse and approach innovations and novelties with scepticism. For that reason, we anticipate Turkish websites to accentuate conventional aspects of company and product whereas US websites to emphasize the way company explores new frontiers.

Individualism - Collectivism: Collectivist societies value togetherness (Holfstede, 1980) hence family/group themes and pictures are expected to be more prevalent than individual themes and pictures in Turkish websites. Additionally we expect that the content in Turkish websites, especially in the home page, will employ a group style by using pronouns such as we, our, us instead of indirect sentence structures or pronouns such as I, me, you in order to reflect a sense of family within the company. Finally, we believe that there will be more announcements of events and activities in Turkish websites, which will convey the importance of community relations for the companies. However, such announcements will be less common in US websites

Masculinity - Femininity: Masculine cultures stress the importance of performance outcomes, determination and success (Hofstede, 1980). Consequently we anticipate more financial information such as stock prices, annual reports etc. to be present on US websites. Similarly, in US websites we expect more statements related to success of the company such as company and product awards, accreditations from prominent institutions. Another essential aspect of masculine societies is to emphasize distinguished gender roles and assign certain duties among men and women strictly (Hofstede, 1991). Accordingly we deduce that a more rigid distinction will be discernable in the pictures of US websites compared to the Turkish ones.

High - Low Context: In high context communication, the meaning is disclosed in the context whereas in low context communication the meaning is revealed directly in the message (Zhao et al., 2003). Consequently we expect higher proportion of pictures and limited amount of information especially in product pages of Turkish websites. On the contrary lower proportion of pictures and more detailed information will be presented in US websites. An additional characteristic of high context societies is to place more emphasis on non-verbal aspects of communication compared to low context societies (Hall 1976). Therefore, we predict more animation, films and music in Turkish websites. Moreover, high context societies prefer an indirect form of communication, with several layers of meaning (Hall, 1976). Thus we believe information will be more layered and hidden with multiple sidebars in Turkish websites, while it will be more direct and accessible in US websites beneath a single sidebar.

4. Methodology

This study used content analysis as the research method. Content analysis is "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson, 1958, p.18). The objective feature of content analysis implies that there should be agreement among different analysts. Systematic description suggests that the researcher uses generally recognized randomization procedures and predetermined criteria to select items for analysis. Finally, the quantitative feature of content analysis ensures precision in measurement and enables the researcher to apply statistical tests (Cobb-Walgren and Mohr, 1998).

In this study, we used content analysis to investigate cultural values depicted on Turkish and US websites. More specifically, the unit of analysis was the US and Turkish websites of selected companies. These websites were analyzed for the presence or absence of the fourteen predefined criteria by coding "1" or "0".

4.1 Sample selection

The sample for the study was generated from the list of US based Fortune 500 companies. Of these 500 companies, the ones with a country specific website for Turkey were selected. For some companies, the homepage was in Turkish but the rest of the site was in English, so these companies were eliminated. As a result, a total of 44 companies and thus 88 websites were retained for analysis.

4.2 Reliability

Three coders independently analyzed the 88 websites for the predetermined fourteen dimensions. In total, this resulted in 1232 (88x14) codings. In case of disagreement among judges, a majority rule was used to determine the final coding. To assess the psychometric soundness of the analysis, the agreement among all three judges was checked, which provided a stringent confirmation of reliability. The three coders agreed on 821 of the items, hence the percentage inter-judge agreement was 67 percent.

However, the percentage agreement is not a satisfactory measure since part of agreement might be due to luck. Therefore, statistical z-test was conducted (Zimmer and Golden, 1988). First, the probability by chance alone that the three judges will assign the same coding was calculated to be 0.25. Then, a z-score was calculated according to the following standard formula.

$$z = \frac{k - Ek}{\sqrt{np(1-p)}}$$

where,

k=821 (actual number of matches), Ek=616 (expected number of matches), N=1232 (total number of codings) and p=0.25 (probability that three coders will agree by chance alone). The z-score calculated according to the above formula was 13.49, which is statistically different from zero at a 99% confidence level.

As a final measure of reliability, the Holsti (1969) value was calculated according to the following formula

$$H = \frac{nA}{1 + (n-1)A}$$

where,

$n=3$ (number of judges) and $A= 0.67$ (average agreement). The result of the above formula was 0.86 for our sample. Since it is above the 0.85 threshold value, the reliability is satisfactory.

5. Analysis and Findings

First, the frequencies of the fourteen cultural value dimensions were compared by a one-way analysis of variance. As can be seen on Table 2, the presence of ten of these fourteen dimensions differed significantly between US and Turkish websites.

As anticipated, the percentage of occurrence of family or group theme and "we" approach was more common on Turkish websites than on US websites. Also, annual reports and success stories were more frequent on US websites. Finally, Turkish websites displayed more pictures, less detailed information, and more sidebars compared to US websites.

Contrary to our expectations, however, US websites displayed more features related to uncertainty avoidance, namely, the presence of a site map, company history and tradition theme. This might be due to the fact that US companies consider Turkish websites as auxiliary divisions, and do not bother to translate all the available information from English to Turkish.

Second, the overall scores for each of the four dimensions were calculated in the following way. The average presence of each of the subcategories within each dimension was calculated and was recorded as an aggregate score for that dimension. For instance, the aggregate score for the individualism-collectivism dimension was calculated by counting the presence of all three subcategories on a website, and then dividing the number by three. Then, a one-way analysis of variance was implemented and the results are shown on Table 3. As anticipated, Turkish websites displayed more collectivist features than US websites. Second, Turkish websites depicted lower masculine values. Third, Turkish websites displayed more high context oriented features. Finally, contrary to our expectations, US websites demonstrated more uncertainty avoidance features compared to Turkish websites. For all these four dimensions, the differences were statistically significant.

Third, a cluster analysis was performed to investigate whether these 88 websites would be divided in two groups (Turkish and US websites) based on cultural dimensions as we expected. In applying cluster analysis, we followed the approach of employing hierarchical and non-hierarchical methods in combination. The first step was hierarchical clustering to determine the appropriate number of clusters. We used the agglomerative technique and chose Ward's (1963) method, which maximizes between sample variation and minimizes within sample variation. Hierarchical cluster analysis pointed to a two cluster solution. In the second step, we used k-means clustering to further improve the cluster solution and to see whether the clusters are statistically stable. K-means cluster analysis resulted in two clusters containing 42 and 46 websites each. When we checked each website for cluster membership, it was seen that the first cluster consisted of 41 US and 1 Turkish websites. The second cluster, on the other hand, was comprised of 43 Turkish and 3 US websites. Thus, cultural value dimensions approximately grouped the Turkish and US websites into two clusters. Finally, as can be seen on Table 4, nine of the fourteen dimensions significantly differed across the two clusters.

6. Conclusions and Implications

The evidence presented in the content analysis of 88 US and Turkish websites showed that the web is not a culturally neutral medium, but it reflects the cultural environment that surrounds the consumers. The analysis indicated that US websites differ from their Turkish counterparts in a variety of ways, mainly in line with the cultural dimensions of Hofstede (1980) and Hall (1976).

In general, it was seen from the analyzed websites that US based international companies employ some effort to their localization strategies on the Web for their Turkish websites. In line with the main propositions of the study, Turkish websites display more collectivist and more high-context oriented features than US websites while they show lower masculine values. However, contrary to our expectations, US websites display more features related to uncertainty avoidance.

We believe that the situation with high uncertainty avoidance applications of US websites is due to the tendency of the selected companies to consider Turkish websites as auxiliary divisions, and not to invest necessary time and effort to translate all the available information from English to Turkish. However, as a culture having a high uncertainty avoidance tendency, Turkish consumers may look for applications on web that incorporate hands down approach. This

may increase Turkish consumers' trust on the web service of the related companies as well as their e-commerce applications.

Although the results of this study may not be generalized due to the limited number of country specific web page comparisons, they have some implications for international companies with domestic and international web pages, as well as marketers and web designers in their website localization efforts.

As pointed out by Barber and Badre (1998), Fock (2000) and Simon (1999), country-specific and culturally reflective web pages increase website usability and interactivity. This is mostly due to the fact that web pages that have a local feel provide an ease for local consumers while integrating with web (Barber and Badre, 1998).

In an era where communication has been shifted to internet base, multinational companies have also chosen this effective medium for their advertising and communication applications. Cultural adaptation on the web is important for the international companies to be accepted and trusted by the local customers. By incorporating the features of local culture in to their country specific websites, international companies may help consumers to feel familiar while using their web pages. We believe that by paying attention to the cultural adaptation of web pages, international companies, marketers and web designers may help to the web-based promotion of international companies while reaching more consumers without losing personal touch.

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Table 1. Website Features

Uncertainty Avoidance	Individualism - Collectivism
Site map	Family / Group theme
Search	"We" approach
Conventional approach	Group activities
Company history	
Masculinity - Femininity	**High - Low Context**
Annual reports	Animation
Success stories	High proportion of pictures
Clear gender roles	Undetailed information
	Multiple sidebars

Table 2. Frequency of Items under Cultural Value Dimensions

	TURKEY	USA	F-statistic	
Individualism-Collectivism				
1.Family / Group theme	30%	14%	3.34	*
2."We" approach	29%	14%	3.33	*
3.Group Activities	11%	9%	0.12	
Uncertainty Avoidance				
1.Site map	57%	80%	5.44	**
2.Search	61%	100%	27.07	***
3.Conventional approach	30%	30%	0	
4.Company history	59%	84%	7.16	***
Masculinity - Femininity				
1.Annual reports	9%	95%	254.48	***
2.Success stories	11%	70%	48.61	***
3.Clear gender roles	5%	0%	2.05	
High - Low Context				
1.Animation	48%	41%	0.41	
2.High proportion of pictures	80%	16%	58.73	***
3.Undetailed information	93%	39%	42.56	***
4.Multiple sidebars	100%	89%	5.51	**

Note: *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 3. ANOVA Results for Four Cultural Dimensions

Dimension	TURKEY	USA	F-statistic	
Individualism-Collectivism	55%	8%	186.56	***
Uncertainty Avoidance	52%	73%	18.67	***
Masculinity - Femininity	13%	23%	4.35	**
High - Low Context	63%	44%	16.75	***

Note: *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 4. ANOVA Results for Cluster Analysis

	Cluster Mean Square	df	Error Mean Square	df	F-statistic	
Individualism-Collectivism						
1.Family / Group theme	.704	1	.165	86	4.266	**
2."We" approach	.392	1	.169	86	2.321	
3.Group Activities	.004	1	.094	86	.042	
Uncertainty Avoidance						
1.Site map	1.447	1	.205	86	7.053	***
2.Search	3.597	1	.118	86	30.569	***
3.Conventional approach	.008	1	.213	86	.036	
4.Company history	2.276	1	.182	86	12.527	***
Masculinity - Femininity						
1.Annual reports	16.364	1	.065	86	251.758	***
2.Success stories	6.759	1	.169	86	40.052	***
3.Clear gender roles	.050	1	.022	86	2.248	
High - Low Context						
1.Animation	.259	1	.249	86	1.040	
2.High proportion of pictures	8.870	1	.152	86	58.296	***
3.Undetailed information	8.526	1	.131	86	65.200	***
4.Multiple sidebars	.311	1	.051	86	6.075	**

Note: *** Significant at 1%, ** significant at 5%, * significant at 10%.

Research on Textile Enterprises to Broaden the Financing Channels

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Abstract

Textile industry exposes many problems under financing crisis: lack of innovation, extensive growth, etc. To solve these problems, the textile industry must achieve industrial upgrading and enhance the core competence. However, the shortage of capital has restricted the development of textile industry. The paper, referring to some scholars' recommendations, discussed how to broaden financing channels to solve the current financing problems for textile enterprises.

Keywords: Textile industry, Financing channels, Financial crisis

1. Introduction

Textile industry plays a prominent role in Chinese economic development. However, in recent years, it experiences a series of tests such as trade friction, RMB exchange rate appreciation, considerably increasing of energy price, a gradual increase in financing costs, environmental pressures and the global financial crisis. (Ji, 2009, p.34).Especially for financial crisis, it has been in a condition of declining in benefits, increasing in losses, and financing difficulties. To solve the shortage of funds problem, many enterprises strengthened internal controls, which can not fundamentally solve the funding difficulties. Therefore, in current economic situation, broadening the financing channels is very urgent and necessary.

2 .The current situation and problems of financing in textile industry

On the one hand, external resources rely largely on debt financing, relatively, equity financing is in the condition of underdevelopment. on the other hand, internal financing which include depreciation financing and retained earnings are less than the external. (Zhang, 2008, p.15).In all, the financing channels are very simple, traditional and lack of innovation. Meanwhile, the amount is so limited that it hinders the development of textile industry. Hence, broadening the financing channels is very significant.

3. Means of broadening financing channels

3.1 The special fund from the government's financial capital

By increasing R&D input or establishing leading brand, textile enterprises may apply for a special free fund, such as technology innovation fund. On the one hand, it eases the pressure from the insufficiency of funds. on the other, it increases the company's intangible assets and improves the company's popularity. Conversely, it benefits further financing . (Yu, 2008, p.20).

3.2 Financing service from other corporates

The traditional means of financing between corporates are basically limited to pre-paid accounts and business credit. In recent years, the domestic and foreign manufacturing companies carried out a number of service-oriented

manufacturing, financing services included. For instance, Shanghai Electric's finance lease, Shaan Gu group's credit innovation, and so forth. Textile enterprises can take advantage of the financial services to expand their financing channels, by means of purchasing their products. The means is superior to lease in costs, and worth to be explored.

3.3 Intellectual property mortgage and bank shares

After intellectual property including patents, trademarks, copyrights are assessed and mortgaged, textile enterprises with valuable intangible assets can declare bank loans. (Duan, 2009, p.206).

Bank shares are benefit to banks and enterprises. In short term, the injections of bank's capital make enterprises tide over their difficulties. In the long term, as a shareholder, the bank can directly participate in the management and supervision directly. Meanwhile, banks can obtain good credibility and large development, and companies may finance easier due to the special status of shareholder. At present, our country still don't have corresponding policies to support this system, the government departments should guide banks and financial institutions to inject funds and hold the dominant idea 'fund to be used effectively is the only standard' . (Ren, 2008, p.211).

3.4 Venture capital and credit cooperatives

Capital from non-bank financial institutions have broader prospects than bank credit capital.

Venture capital is equity financing and fresh in China. Entrepreneurs in textile corporation can sell their shares to venture capitalists to obtain funds. Venture capitalists bear the risk of the enterprise's development capacity. Its operation is generally 'financing - investment - management - value added -withdraw'. But there exists some obstacles in our country, such as not forming an effective venture withdrawal mechanism yet, not having a good credibility situation in the textile industry, and entrepreneurs' reluctance to sell equity stake. Only after we solve these problems , could venture capital become the main financial channel in textile industry. (Chen, 2009, p.25).

A variety of credit cooperatives in the textile business loans play a direct, important role. It's a local 'micro-bank.' Compared with commercial banks, this financing method has the advantage of simple financing process and little restriction.Textile corporation may make well use of geographical advantages to declare some loans.

3.5 Broadening the financial channels of private capital

The features of private capital are quite decentralized and powerful. In recent years, the growth rate of household savings deposits is close to 15%. On the one hand, many textile enterprises are faced with serious capital insufficiency; on the other, such a large capital has been idled in the bank, which is against the principle of giving priority to efficiency.

At present, there are 2,000 pawn shops in China, whose registered capital has reached 17 billions, which makes it possible to finance by pawning for the textile enterprises.

Additionally,financing from employees could raise long-term funds, and increase workers' sense of togetherness. The flexible modalities of capital return could meet emergency expenses. But this approach hasn't been paid enough attention in textile industry.There are a lot of employees in textile enterprises, which make staff financing possible. With this method, textile enterprises can get the long-term funds and strengthen the cohesion of staff.

Textile enterprises need to carry out joint-stock reform of property privatization. With such a change, the textile industry not only concentrates on construction, but gets a lot of money. According to recent investment in fixed assets and securities markets, private capital has shown an increasing interest in the acquisition of state-owned assets . (Tao, 2009, p.64).

3.6 Gaining foreign and Hong Kong, Macao and Taiwan capital

At present, China's textile enterprises have weak fund-raising capacity abroad. The state allows non-bank financial institutions to issue corporate bonds overseas on behalf of large companies to attain direct financing on the international capital markets, but domestic enterprises with the ability are few; which means fund is basically confined to the home and rarely involved in overseas; In addition, the number of equity financing   overseas is very limited, therefore, it is necessary to broaden the financing channels in these areas, Such as listing at home and abroad, ABS(asset backed securitization)financing, (Guo, 2002, p.24).foreign funds and attracting foreign strategic investors, and so on.

4 .The relevant recommendations

It is a systematic project for textile enterprises to broadening financing channels, which demands community efforts including government, financial institutions, enterprises themselves, etc, to help textile industry get out of the woods.

Firstly, the government should reinforce construction and monitoring, and improve the domestic venture capital market, guarantee system, credit service system, enterprise fund system. Above all, no matter what innovative financing channel the textile enterprises adopt, it will ultimately return to business operations, the enterprise's internal control and governance mechanisms. Therefore, the good development of textile industry is the best guarantee for the financing.

5. Conclusion

The paper mainly states some innovational financing means which textile enterprises can take under present severe financial crisis, such as special fund, the financing service, intellectual property mortgage, bank shares, venture capital, credit cooperatives, etc. It will be fairly significant for them to solve the present financing difficulties to help them ride out the storm. Meanwhile, the paper exists some deficiency about how to guarantee the implementation of the means.

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Ranking Sectors Changes of the Malaysian Economy:

Input-Output Approach

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Abstract

This study attempts to re-investigate the production structure change for Malaysia economy through the ranking sectors changes over the period 1983-2000. We used four input-output tables had published so far by Department Statistics of Malaysia (DSOM) for the period under study. The study employed the Leontief model for demand side (Input inverse $(I-A)^{-1}$) for forward linkages indices, while supply side (Output Inverse, $(I-O)^{-1}$) for backward linkages indices to examine the ranking sectors structure changes. New evidence is found in this study: first, the integration degree between demand and supply side for the Malaysian economy still remain weak. Second, the rank correlation coefficients between forward and backward indices are not significant and very weak. Third, the linkages between the commodities sectors and the rest of the economy still remain weak. Fourth, there is still a high dependency on the primary sectors, such us Oil palm, Rubber primary products and Wood sectors. Finally, fifth, the main results of the development policies were to transform Malaysia from an exporter to an importer foodstuff and other agriculture products.

Keywords: Input-output Model, Input Coefficient, Output Coefficient, Backward Linkage, Forward Linkage, Key Sector

1. Introduction

One of the objectives all less developed countries have set themselves is rapid growth in income per head. Rising incomes are associated in both time-series and cross-section studies with a rising share of industry in gross domestic product (GDP) [BULMER-THOMAS, 1982].

The development process can be carried out in a number of ways, but each new industrial investment will offer opportunities for other suppliers (backward linkages) and provide input for utilisation by other users (forward linkages). Furthermore, these backward and forward linkages are not reflected in market prices and therefore represent externalities, which could cause the social benefits of investment to diverge from the private benefits [BULMER-THOMAS, 1982; p.190]. It might appear, therefore, that by concentrating on those sectors with high backward or forward linkages, the development process could be speeded up. If, furthermore, we were prepared to assume [HIRSCHMAN, 1958; p.102] common techniques across countries for each sector, a common set of relative prices and a distribution of income consistent with the eventual emergence in each less developed country of the structure of demand to be found in developed countries, then we could select our key industrial sectors for promotion by reference to the backward and forward linkage found in developed countries.

The average backward and forward linkage indices are greater in the developed countries than those in the less developed countries, and the indices of the coefficients of variation are lower in the developed countries than in the less developed countries, presumably revealing a lower level of integration of these economy's industries [BOUCHER, 1976; P.318].

We shall argue below that these assumptions are too strong and that the ranking of sectors or investments in terms of linkages in this way is not a very satisfactory guide to development planning. However, first we must show how we might measure such linkages using input-output tables for the Malaysian Economy, for it should be clear that such tables offer an excellent opportunity to quantify a concept which would otherwise remain empirically intractable [BULMER-THOMAS, 1982; P.192]. The structural linkage of sectors can be described by two types of linkage effects, which can be measured in the framework of technology matrices. These linkage effects are the backward linkage effect and the forward linkage effect.

Before reviewing the theoretical basis of the linkage argument, two important points should be noted.

First, measures of linkage should not be confused with sectoral (income or employment) multipliers. Sectoral multipliers are designed to measure the impact of an increase in final demand on income or employment [BEKHEET, 2009]. Measures of linkage are designed to assess the impact of an increase in final demands on gross outputs. A high value for backward or forward linkages does not imply a correspondingly high value for the income or employment

multipliers, a point overlooked by some writers who seem to assume that high linkages mean a high domestic value-added content. For the above reason I will study the multipliers in a separate paper [BEKHET, 2010].

Secondly, it is important to distinguish between measures of linkage based on the existing technology of a economy's structure of production, and measures of linkage based on the existing interdependence of domestic sectors of production. In the latter case, backward and forward linkages measure the impact of a unit increase in final demand on domestically supplied inputs and outputs, and the appropriate matrix for calculating linkages is $(I\text{-}A_d)^{-1}$, where A_d is the matrix of domestic transaction coefficients. In the former case, measures of linkage are based on the technology matrix $(I\text{–}A)^{-1}$, where A is the matrix of total (domestic plus imported) transaction coefficients. Hence, in this case, backward and forward linkages measure the impact of a one unit increase in final demand on total supply, rather than gross output, In this study, I will be using the technology matrix $(I\text{–}A_d)^{-1}$, because the imports coefficients are not available for all the Malaysian input-output tables [Department Statistics Of Malaysia, 2009].

The subsequent nine sections of this paper are structured as follows. Section 2 deals with the problem and objectives of the paper. Section 3 deals with the definitions of the input coefficients matrix, A, and output coefficients matrix, O. Section 4 deals with the interpretation of the input Leontief inverse, $(I\text{–}A)^{-1}$ and the output Leontief inverse, $(I\text{–}O)^{-1}$. Section 5 examines with backward linkages and forward linkages. Section 6 gives empirical results of the linkage indices for the Malaysian economy. Section 7 offers some policy implications. In Section 8 some concluding remarks are made.

2. The problem and objectives of the Analysis:

2.1 The problem

In Malaysia, as in most resources-rich developing countries, the availability of foreign exchange generated by the rapidly growing export of resources has been of great importance to the process of economic development. The aim of Malaysia development policy has been, primarily, to invest in the commodities sectors. The rationale behind this policy was to build a solid base for the Malaysian economy; by using the resources revenues (such as Crude Oil, Mining & Quarrying, Palm Oil, and Rubber products) to support the establishment of large scales enterprises, which could produce intermediate products at competitive prices for the other industries in the economy. This would thus aid the integration of the national economy. Secondary aims were to assist in income redistribution, import substitution, export growth and agricultural modernization.

Unfortunately, such a policy of inter-sectoral imbalance between economic sectors has lead to a poorly integrated economy in the short-run, causing a heavy dependence on imports. The presently existing weak forward and backward linkages between sectors are cited among the problems existing in the Malaysian economy.

In addition, the planners' policy towards the industrial sector regarding the adoption of advanced technology has resulted in production below its potential maximum in the short-run. This is because a number of structural "bottlenecks" developed, such as an insufficiently trained labour force and a lack of managerial and technical skills, as well as a heavy bureaucratic and hierarchical structure of organisation.

2.2 Objectives of the Analysis:

This study aims to assess the success or failure of Malaysian economic policy with input-output analysis. A static input-output model is used. Unfortunately, dynamic input-output models must be ignored, as the necessary capital matrix is not available for the Malaysian economy. The period of study is 1983-2000, during which time four input-output tables were established. The year 2000 is chosen as the closing year of study because this is the last year for which an input-output table is available.

It would be expected that in resources-rich developing economy, such as that of Malaysia, substantial structural change will take place over time. In particular, one might expect marked changes in the technologies employed, especially the nature of inter-industry trading. Also, change in the level and mix of final demand for produced goods would be expected to occur. One would anticipate that the role of state economic planning would be to facilitate and direct such developments.

Input-output analysis is well suited to the analysis of the nature of economic development through changing demand and changing technology. There are so many input-output techniques we can use to explore the ranking change of the sectors, such as linkages, multipliers, matrix triangularsation. Thus this study uses one of these techniques of input-output methods to explore the structural change of the Malaysian economy which is linkages analysis. It leads towards the conclusion that economic integration has occurred in Malaysia during the period of study. Also, there is evidence of increasing efficiency in the Malaysian economy. However, there remain substantial benefits from further integration which economic plans thus far have not exploited.

3. The Input Coefficients Matrix and the Output Coefficients Matrix

The input-output model describes two aspects of the relationships among participants in the production process. It can answer both:' Who receives from whom? ' and 'Who gives to whom?'. Accordingly, the structure of the relationships

may also be approached in two ways. We may examine how much is needed of the output of preceding stages, or of the primary inputs, for some purpose (either for final use or for a unit output of some industry); this is the input approach. But we may examine what will come out of something, either of primary inputs or of the unit output of some industry, in successive stages or in final use; this the output approach.

These approaches describe the transactions of products and values in two opposite directions. One of them asks: 'Where do they come from? ', the other: 'Where do they go? '.

For the purpose of the analysis of these linkages, I will use the following definitions.

First, the input coefficients matrix, $\underline{A}$, can be used to analyse backward linkages, (i.e., intermediate inputs as a share of total inputs, including value added). Mathematically we can represent the input coefficients matrix, in element form; as:

$$a_{ij} = \frac{z_{ij}}{x_j} \tag{1}$$

This is as earlier defined in the literature (see LEONTIEF, 1963 and 1966). But we can rewrite it in matrix form:

$$\underline{A} = \underline{Z} \; \hat{\underline{x}}^{-1} \tag{2}$$

Here, z_{ij} is intermediate demand, x_j is total demand, and $\hat{\underline{x}}$ is the diagonalised vector $\underline{x}$, as a matrix; $\underline{Z}$ is the matrix of intermediate transaction.

Second, several authors [BULMER-THOMAS, 1982; NUGENT, 1973; et. all] have suggested that an alternative point of view can be taken with the basic input-output model. This alternative relates sectoral gross production to the primary inputs (that is, to a unit of value entering the interindustry system at the beginning of the process). This approach is made operational by essentially transposing our vertical (column) view of the model to a horizontal (row) one. Instead of dividing each column of $\underline{Z}$ by the gross input of the sector associated with that column, divide each row of $\underline{Z}$ by the gross output of the sector associated with that row. We used $\underline{O}$ to denote the direct output coefficients matrix that results. The output coefficients matrix, $\underline{O}$, can be used to analyse forward linkages. (i.e., intermediate sales as a share of total sales including final demand). We can define the output coefficients matrix, $\underline{O}$, by:

$$O_{ij} = \frac{z_{ij}}{x_i} \tag{3}$$

Or in matrix notation:

$$\underline{O} = \hat{\underline{x}}^{-1}\underline{Z} \tag{4}$$

The input and output coefficients matrices for Malaysian Economy are available with author.

4. The Input Leontief Inverse and the Output Leontief Inverse

In this section, I should explain the meaning of the input Leontief inverse, $(I–A)^{-1}$, and the output Leontief inverse, $(I–O)^{-1}$. Briefly, the former is based on a matrix of technical input coefficients A. The latter uses technical output coefficients $\underline{O}$.

First, the input Leontief inverse, $(I–A)^{-1}$, elements may be interpreted [JONES, 1970; p.325] as follows:

(1) The elements of $(\underline{I}–\underline{A})^{-1}$ represent the increase in output of the ith industry to supply the inputs required for a unit of final demand in the jth industry.
(2) The ith row sum of $(\underline{I}–\underline{A})^{-1}$ is the increase in total output of the system required to utilize the increase in output from an initial unit of primary input into industry i.
(3) The column sums of $(\underline{I}–\underline{A})^{-1}$ represent the increase in total output of the system required to supply inputs for initial unit increase in final demand from each industry j.

Second, the output Leontief inverse, $(\underline{I}–\underline{O})^{-1}$ element may be interpreted as follows:

(1) The elements of $(\underline{I}–\underline{O})^{-1}$ represent the increase in output of the jth industry required to utilize the increase in output brought about by a unit of primary input into the ith industry.
(2) The ith row sum of $(\underline{I}–\underline{O})^{-1}$ is the increase in total output of the system required to utilize the increase in output from an initial unit of primary input into industry i.
(3) The column sum of $(\underline{I}–\underline{O})^{-1}$, like the row sum of $(\underline{I}–\underline{A})^{-1}$, has to do with the effect of a unit expansion of primary inputs into (or for final demand, from) all industries.

The input and output inverse matrices for Malaysia are available with author. For the purpose of this paper; I will define the elements of the input Leontief inverse matrix to be c_{ij} and the elements of the output Leontief inverse matrix to be v_{ij}.

5. The Data and Methodology

Basically, the present study uses secondary data based on the four input-output tables compiled for the Malaysian economy so far. These tables were produced by the Department of Statistics. For analytical and comparable purposes, the original input-output tables consisting of different number of sectors are aggregated into 39 sectors based on International Standard Industrial Classification (ISIC). These sectors are shown in Table 1.

5.1 Backward linkages

The backward linkage effect allows one to find the dependence of one industry on other industries in respect of the supply of inputs. It measures the extent to which one industry utilizes the outputs of industries. This implies that for a sector with a high backward linkage effect, by increasing the output of the specific industry a powerful stimulus is set into operation in other industries, to increase the outputs of those industries. The aim of this section is to measure the potential for other activities resulting from investment in any sector. One possible measure of direct backward linkage from the input coefficient matrix, $\underline{A}$, is the sum of the column elements [CHENERY, 1958; p.492]. i.e.

$$\underline{s}_j = \underline{i}'\underline{A} \tag{5}$$

$\underline{s}_j$ will measure the ratio of purchased inputs to the value of total production x_j, and $\underline{i}$ is the unit (summation) vector. I show the results of this measure for the Malaysian economy for 1983-2000 period in the Table 2.
Table 2

These show the direct backward linkages, derived from Equation (5). The value of direct backward linkages determines the values of input percentage of the value of production in these sectors. The remaining input value is attributable to factors used in other establishments.

The key points to note from Table 2 are the significant change in ranking of the most sectors except the Oils and Fats product. This sector is kept its ranking with high ranking for all tables under study. Agriculture, it will be noted, does not exhibit a significant long-term change in its ranking. Crude oil & Mining and Quarrying is mostly ranked last in all years. The ranking of this sector decreases markedly in the post 1983 period.

But this only measures direct backward linkages and takes no account of the indirect stimuli given to the economy if investment takes place. This measure has three deficiencies [JONES, 1970; p. 324]: double counting of causal linkage, neglect of indirect impacts, and failure to distinguish the domestic effect from those operating on foreign economies. The first problem is that in an input-output framework, sales of industry A to industry B are recorded as A's forward linkages and B's backward linkages, but only one of these can be effective in a causal sense. Causality is at the root of the HIRSCHMAN hypothesis using input-output interdependence as a proxy for linkages [JONES, 1970; p.325].

To measure both the direct and indirect effects, we need the LEONTIEF inverse matrix $(I-A)^{-1}$ (the input Inverse). We can get direct and indirect backward linkage for any sector j by the sum of the column elements of input inverse [YOTOPOULOS and NUGENT, 1976; p.335], as:

$$\underline{l}_j = \underline{i}'(\underline{I}-\underline{A})^{-1} \tag{6}$$

We see that $\underline{l}_j$ is the sum of the elements in column j of the LEONTIEF inverse. Now each element in column j measures the direct and indirect impact of the inverse of one unit in the final demand for industry j on each of the n industries. It must be noted that Equation 6 would be used also as a multiplier (see BEKHET, 2009). The results for the Malaysian economy are shown in Table 3.
Table 3

The comments made above about the significant changes in ranking shown in Table 2 are equally applicable to Table 3.

Typically, these elements are defined in terms of gross output values, and $\underline{l}_j$ is then the aggregate or economy-wide gross output generated by an increase of one unit in final demand in industry j. However, a normalization procedure is often carried out, by comparing the average stimulus created by sector j with the overall average [RASMUSSEN, 1957; pp.133-140]. The direct and indirect backward linkage index then becomes:

$$\underline{q}_j = \frac{1/n \ \underline{i}'(\underline{I}-\underline{A})^{-1}}{1/n^2 \ \underline{i}'(\underline{I}-\underline{A})^{-1}\underline{i}} \tag{7}$$

The numerator denotes the average stimulus imparted to other sectors by a unit's worth of demand for sector j. The denominator denotes the average stimulus for the whole economy when all final demands increase by unity. Equation (7) has been applied to the input-output tables for the Malaysian economy. The results are shown in Table 4.
Table 4

As noted with Table 3, the comments on the changes in ranking applied to Tables 2 still apply when Table 4 is examined.

The difference between $\underline{l}_j$, as defined in Equation (6), and $\underline{q}_j$, as defined above, is the normalization in the latter by the number of sectors and by the double sum of columns and rows. Since the number of sectors and the double sum are obviously the same for any one country, $\underline{q}_j$ is simply perfectly correlated with itself after normalization by a constant [YOTOPOULOS and NUGENT, 1976; p.340]. It follows that $\underline{q}_j>1$ implies a jth sector where investment yields above average backward linkages, while the opposite is true for $\underline{q}_j<1$.

When $q_j>1$, it means that an industry would need a comparatively large production increase to cope with one unit increase in the final demand for the product of industry j. The economic interpretation of $q_j>1$ would be that the industry j would draw heavily on the rest of the industries, compared with other industries. On the other hand, $q_j<1$ means that the industry j does not draw heavily on the rest of the industries. This measure was first devised by RASMUSSEN [1957], as the index of the power of dispersion (corresponding to the index of backward linkage). It is worth noting that this measure pre-dated ideas about the role of linkage in industrial development strategy, and was simply regarded as useful summary measure of the structural interdependence of an economy [McGILVRAY, 1977; p.50].

Reference to the ranking of q_j alone would not be sufficient to assist industrial planning, for a number of reasons. A high index could have been achieved, although only one or two sectors stand to gain from the backward linkages created by the investment. This can be taken into account by considering the dispersion of the stimuli according to the formula for the coefficient of variation:

$$J_j = \sqrt{\frac{(1/n-1)\sum_{i=1}^{n}\left(c_{ij}-1/n\sum_{i=1}^{n}c_{ij}\right)^2}{1/n\sum_{i=1}^{n}c_{ij}}} \qquad (8)$$

This equation has been applied to the input-output tables for the Malaysian economy, for the period under study. These results are shown in Tables 5.

Table 5

The changes in ranking shown in Table 5 show some variation on those revealed in Tables 2-4. The ranking for Crude oil, Mining & Quarrying sector is moving up for all years, rather than at the last, whilst Oils & Fats product kept its rank at the first. There is significant change of the ranking for the most sectors for all tables. Agriculture, however, shows remarkable change over time.

A low J_j means that the investment in sector j would stimulate other sectors in an even manner, while a high J_j means that the benefits of the stimuli provided by backward linkage would be unevenly shared [BULMER-THOMAS, 1982; p,191]. On the other hand, in that case a relatively high value of J_j can be interpreted as showing to what extent a particular industry draws heavily on one or a few industries. Thus, a low value of J_j can be interpreted as that a particular industry draws evenly on other industries.

5.2 Forward linkages

The basic idea of forward linkage is to trace the output increase which occurs, or might occur, in using industries when there is a change in the sector supplying inputs. The forward linkage effect measures the dependence of one specific industry on other industries, in respect of the supply of its output as inputs to these industries. For an industry with a high forward linkage effect, it implies that by expanding the output of a specific industry a powerful stimulus is generated in other industries, by way of absorbing the output of the specific industry as inputs to other industries. The meaning of direct forward linkage may be derived from the output coefficient matrix $\underline{O}$. The direct forward linkage is the sum of the row elements of $\underline{O}$ matrix [YOTOPOULOS and NUGENT, 1973; p.161]:

$$\underline{s}_i = \underline{O}\ \underline{i} \qquad (9)$$

Here, $\underline{s}_i$ denotes the ratio of intermediate demand to total demand, x_i, for a given product. These ratios for the Malaysian economy are shown in Table 6.

Table 6

The key points to note from Table 6 are the changes in ranking of the most sectors were fluctuating during the period under study. But there is some sector still keeping their ranking, these are Animal feeds product; Oil Palm Primary product; Electricity & Gas; Health; Education; Real estate & Ownership dwelling; Hotel & Restaurant; Building & Construction; and Furniture & Fixtures sectors. Agriculture, it will be noted, does have a decreasing significant long-term change in ranking. Once again, Animals Feeds product is ranked first in all years. While the ranking of the Health and education sectors are last in all tables.

However, this only measures direct forward linkage, and takes no account of the indirect stimuli given to the economy if the investment goes ahead. The measurement of direct and indirect forward linkage effects may be derived from the output inverse $(\underline{I}-\underline{O})^{-1}$, using the technical output coefficients matrix $\underline{O}$ (intermediate sales as a share of total sales including final demand), [CARTER and BRODY, 1970; pp.252-253]. We can get direct and indirect forward linkages from the sum of the row of the output inverse indicate forward linkage.

$$\underline{l}_i = (\underline{I}-\underline{O})^{-1}\ \underline{i} \qquad (10)$$

The $(\underline{I}-\underline{O})^{-1}$ indicates the increase in the output of the sector i needed in order to cope with a unit increase in the final demand for the product of each industry [BOUCHER, 1976; p.314]. The results for the Malaysian economy are shown in Table 7.

Table 7

The comments made above about the significant changes in ranking shown in Table 6 are equally applicable to Table 7.

High forward linkages occur when a sector's output is, or could be, used by many other sectors as an input. By expanding capacity in such a sector, inducements are provided to using industries which now have an incentive to expand output, to take advantage of the increased availability of inputs. Given our interpretation of the ijth element of the output inverse, a suitable measure of forward linkages might therefore be the row sum of this inverse, which becomes:

$$\underline{q}_i = \frac{1/n\,(\underline{I}-\underline{O})^{-1}\underline{i}}{1/n^2\,\underline{i}'(\underline{I}-\underline{O})^{-1}\underline{i}} \tag{11}$$

This equation has been applied to the input-output tables for the Malaysian economy. These results are shown in the Tables 8.

Table 8

The comments on the changes in ranking also apply to Tables 6 and 7. The only change we can note is that the Oil Palm sector became second in ranking for 1983, 1987, 1991 and 2000 tables.

It is apparent that $\underline{q}_i > 1$ implies a sector with high forward linkage. It would mean that the industry i, in general, would have to increase its output more than the rest of the industries for a given increase in final demand on the system of industries, while the opposite is true where $\underline{q}_i < 1$. The index $\underline{q}_i$ (i = 1, 2, …, n) is thus termed the index of sensitivity of dispersion of the industries under consideration.

The numerator in Equation (11) refers to the ith row sum of the Leontief inverse, which in turn measures the total impact on sector i when the final demand for all sectors increases by unity. If this impact is large, it suggests that increased investment in sector i would induce output increases in all using sectors, as users take advantage of the increased availability of inputs. It might seem, therefore, that $\underline{q}_i$ is a good measure of forward linkages. This measure was first devised by RASMUSSEN, as the 'Index of Sensitivity of Dispersion' (forward linkage). But this measure, according to the ranking of $\underline{q}_i$ alone would not be sufficient to determine industrial planning. Another possibility also suggested by Rasmussen [RASMUSSEN, 1957; pp.138-139] it to look at the variance associated with each industry as:

$$J_i = \sqrt{\frac{(1/n-1)\sum_{j=1}^{n}\left(v_{ij}-1/n\sum_{j=1}^{n}v_{ij}\right)^2}{1/n\sum_{j=1}^{n}v_{ij}}} \tag{12}$$

I have applied this equation to the input-output tables for the Malaysian economy tables for 1983-2000 period. The results are shown in Tables 9.

Table 9

The changes in ranking shown in Table 9 show some variation on those revealed in Tables 6-8. Oil Palm Primary is fluctuating in the ranking for all years rather than second, whilst Oils & Fats product sector moves up to first in all years. The ranking of the Agriculture and Industry sectors move down in most years. If we compare the ranking of health, Education and other serves sectors with previous tables, we can see a significant change for these sectors.

A high value of J_i can be interpreted as showing to what extent a particular industry draws heavily on one or a few industries. A low variance shows that the system of industries draws relatively evenly on industry i and it might be concluded that in this case the row sum might be a reliable indicator of forward linkages. This is not the case, for the problem is not the dispersion of sales across industries, but the existence of sales that are a large share of a small industry. Thus a unity J_i, indicating sales to all industries, could still give distorted row sums if those sales represented a large share of inputs into small industries [JONES, 1970; P.326].

This measure of forward linkage is quite different from the backward linkage, because it measures the forward linkage as the increase in output of all using industries, rather than as the increase in output of the (one) supplying industry.

6. Results Analysis for the Malaysian Economy

To measure the linkage effects of the industrial sectors, the empirical results of the linkage indices are constructed in the framework of inter-industrial production relations. The data used for the construction of the indices are the input-output transaction coefficients matrices for the Malaysian economy.

In order to identify the high backward and forward linkage effects of sectors, the industrial sectors with $\underline{q}_j > 1$ and low J_j, and with $\underline{q}_i > 1$ and low J_i are selected and shown in Tables 10 to 13.

Tables 10-13

The input-output table for 1983 shows that there were sixteen sectors with high backward linkage effects. Of these sectors, one was Oils & Fats products and Foods production other Industries and the remaining fourteen were non-agricultural sectors. Next, there were nineteen sectors with high forward linkage effects, of which the highest ranking was the Animal Feeds product sector. The second ranking was the primary producing sectors such as Oil Palm primary products. The remaining seventeen sectors were the non-agricultural sectors. The two primary producing sectors and the sector of Non-Electrical Machinery and Equipment did not show a backward linkage effect.

Agriculture appeared to be very weakly linked to the national economy, giving rise to the suspicion that it was an enclave sector. It appears that the Agriculture sector, with its potential importance for import substituting and export promoting industries, had few links with the national economy.

However, the other three tables for 1987, 1991 and 2000 show the impact of a planning policy that paid greater attention to the structural sector change. From these three tables it will be noted that structural change becomes in most sectors linked to the national economy in the post 1983 era. But I think this change still far away from planners' targets. As can also be seen from Tables 10-13, some sectors did change a great deal as a result of post 1983 changes in planning policy. i.e., Paper & Printing products, Basic Metal; other Transportation Equipment; Wholesale & Retail Trade; Real Estate & Ownership dwelling. In fact the ranking of the Crude Oil/Gas/Mining & Quarrying sector in the Malaysian economy during 1983-2000 has changed. The main differences are for commodity sectors, i.e. Manufacturing Industries, and these sectors seem to have a fluctuating position during the period under study.

Sectors with a high forward linkage effect and a high backward linkage effect could be regarded as key sectors of the Malaysian economy in the period under study. In addition, these sectors should be given high priority by planners in investment planning. These sectors for 1983, 1987, 1991 and 2000 tables are shown in Table 14.

Table 14

In tables 15-18, I have presented the matrices of Rank Correlation Coefficients among eight alternative linkage indices, including all the indices defined above. These results are based on the four input-output tables for the Malaysian economy, for which all eight indices, have been calculated from the original input-output tables. An examination of these matrices of Rank Correlation Coefficients shows that some of the indices (Coefficients of Variation) are quite unrelated, for all Indices. Also, the relations between s_j and s_i; l_j and l_i; q_j and q_i are uncorrelated. Note, in particular, that the backward and forward indices, q_j, s_j, l_j; and q_i, s_i, l_i are correlated, respectively with the indices which I have used above. Therefore, the main result of this analysis is that the integration degree between demand and supply side for the Malaysian economy still remain weak.

Tables 15-18

In fact, given the nature of the key sectors (and the emphasis on their spread effects), it may well be that the faster growth rates may be found in other sectors not identified as key sectors in Tables 10-13. BLUMENFELD [1955] noted the same problem whilst discussing the economic base model. Such sectors may be those with the greatest potential for achieving import substitution [HEWINGS, 1982]. It is expected that such sectors will be reflected as key sectors in the statistical data of coming years.

7. Policy Implications

The theoretical basis and aims of Malaysian planning policy since 1980 have been discussed in Section (2) and the details in [CHING, 2005]. To briefly summarise, the main aim of the planners was to develop the commodities sectors and integrate them with the rest of the economy. It would therefore be expected that the indirect linkages for these sectors would have a high ranking in terms of backward and forward linkages.

The results shown in Tables 10-13, and discussion in the previous sections (5 and 6), show how far this policy has been successfully achieved. The tables show that although some progress has been made, it falls far short of what the planners desired. The linkages between the commodities sectors and the rest of the economy still remain weak. There is still a high dependency on the primary sectors, such us Oil Palm, Rubber Primary products, and Crude Oil, Gas, Mining & Quarrying, and Wooden Sectors. Unfortunately, however, the primary sectors remain a classic example of an enclave export-oriented industry, superimposed on an entirely different type of economy, without any significant economic linkages between it and the rest of the economy. Agriculture, however, has been one area where planning policy has had some success in establishing linkages. But it had low backward linkages because its cost (input) structure is dominated by non-wage costs paid to factors of production. Also, it had low forward linkages since most of its output goes to private consumption. The main results of the policy were to transform Malaysia from an exporter to an importer of foodstuffs and other agricultural products [www.upe.gor].

In addition, the declining rate of growth in the Agriculture sector was the most profound factor in widening economic inequalities between urban and rural areas during the period of the plans. The failure in agriculture resulted in rural income remaining low, especially jungles areas.

Policy emphasised the domestic substitution of some of the growing volume of imported products, and in particular those of oil and rubber derived products. This implies that the planners should have undertaken the construction of a number of industrial projects linking commodities sectors to the consumer, either in the form of final consumable products, or in the form of intermediate goods utilised by other sectors. This, however, did not take place to any great extent.

The fact that not all potential linkages can be translated into actual linkages suggests the need for a modified form of linkages analysis, in which technological coefficients are adjusted for those growth stimuli which are not feasible for Malaysia; such non-feasibility will be determined by considerations of market-size, efficiency, comparative costs, natural resources, etc. The inducement which remains, as measured by the backward and forward linkages analysis, would then be a better guide to the selection of 'key' sectors.

Furthermore, sectors with high backward linkages have a high dependence on intermediate goods, which are typically capital-intensive. In the context of DCs, particularly Malaysia, we are therefore asking planners to give priority to

sectors which directly or indirectly are capital-intensive; although the argument over choice of techniques is complex; this is not a position to which most LDCs would want to be committed.

However, one needs to consider a more fundamental set of objections to linkage analysis based on economic theory. Industrialization is not usually considered as an objective in itself, but as proxy for the rise in real income which is supposed to accompany it. If, however, we consider real income growth per head as our objective, then each investment needs to be evaluated in terms of its direct and indirect income (not output) impact, which can be done by reference to the income multipliers introduced in BEKHET [2009] .

8. Conclusions

In this paper I have made an effort empirically to identify key sectors and structural changes in the Malaysian economy during the period 1983-2000, using the input-output tables for this period. In closing it may be appropriate to allude to a possible limitation of this study. The input-output relations used above assume that a given output requires inputs in fixed proportions, so that the production structure in various industries or groups of industries is fairly stable. This may be true of the modern sector industries in an underdeveloped economy, but it is well-known that the primitive sector in such economies is marked with variable coefficients with a high degree of substitution among inputs [BOUCHER, 1976; p.318]. A high degree of aggregation may fail to reveal the true pattern of linkages in such an economy [see BULMER-THOMAS, 1982, Ch.12].

To the extent that the modern sector dominates the primitive sector in such economies, the linkage value calculated above represents mostly the situation in the modern sector. In view of this, one is not quite sure if the values of linkages calculated above encompass both the primitive and the modern sector in these years, or the modern sector alone. Needless to say, it would be most desirable to utilize a large number of tables and to extend the time series. Yet the concept of linkages is a powerful tool in the economies of development.

These results although admittedly tentative, indicate that the linkage indices merit further attention and empirical research.

In this paper, I have explored only one of the input-output techniques to measure the success of development in Malaysia. The next paper uses multipliers technique to measure the success of development policy.

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Table 1.   Aggregation of sectors.

No.	Sectors Names	Input-Output Tables	
		1991 & 2000	**1983 & 1987**
1	Agriculture products other	1, 4, 5	1
2	Rubber primary products	2	2
3	Oil palm primary products	3	3
4	Livestock breeding, etc	6	4
5	Forestry, logging product	7	5
6	Fishing, etc	8	6
7	Crude oil, Gas, Mining, Quarrying Product	9, 10, 11	7
8	Foods Production other	12-15, 17-21	8-9, 11-13
9	Oils and Fats product	16	10
10	Animal Feeds product	22	14
11	Beverages &Tobacco product	23-24, 25	15-16
12	Textile Products	26, 27, 28	17
13	Wearing Apparel	29, 30, 31	18
14	Wooden Products	32, 33	19
15	Furniture & Fixtures	34	20
16	Paper & Printing Products	35, 36	21
17	Industrial Chemicals	37	22
18	Paints, Lacquers & Other Chemical Product	38-41	23-24
19	Petroleum, Coal Product	42	25
20	Processed Rubber & Rubber Product	43-44	26-27
21	Plastic Products	45	28
22	China, Glass, Clay, cement & Other Non-met Mineral Products	46-49	29-31
23	Basic Metal & Other Metal Product	50-54	32-33
24	Non-Electricity and Electricity Machinery	55-59	34-35
25	Motor Vehicle Manufacturing	61	36
26	Other Transport Equipment	60, 62, 63	37
27	Other Manufacturing Products	64-65	38
28	Electricity & Gas	66	39
29	Water works and supply	67	40
30	Building & Construction	68	41
31	Wholesale &Retail Trade	69	42
32	Hotel & Restaurants	70	43
33	Transport	71	44
34	Communication	72	45
35	Banks, Financial & Insurance	73-75	46-47
36	Real estate & Ownership dwellings	76-77	48
37	Education	79-80	50, 56
38	Health	81-82	51, 57
39	Other Services	78, 83-94	49, 52-55, 58-60

Source: Malaysian Input-Output Tables for 1983, 1987, 1991 and 2000.

Table 2. Direct Backward Linkages, s_j.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	0.112	34	0.146	32	0.182	33	0.188	31
2	0.087	36	0.061	39	0.081	37	0.060	39
3	0.143	32	0.164	31	0.078	38	0.188	32
4	0.599	4	0.570	6	0.666	4	0.698	2
5	0.170	31	0.093	36	0.088	36	0.146	35
6	0.087	37	0.121	33	0.213	31	0.396	14
7	0.133	33	0.079	38	0.106	35	0.079	38
8	0.614	3	0.630	4	0.587	6	0.566	4
9	0.886	1	0.830	1	0.843	1	0.858	1
10	0.385	15	0.391	12	0.321	19	0.280	26
11	0.320	18	0.382	15	0.388	12	0.378	19
12	0.495	10	0.383	14	0.306	21	0.375	20
13	0.302	21	0.265	26	0.244	29	0.391	16
14	0.550	5	0.628	5	0.732	3	0.654	3
15	0.543	7	0.519	8	0.518	7	0.472	8
16	0.288	22	0.317	17	0.288	25	0.396	15
17	0.318	19	0.470	11	0.331	15	0.499	6
18	0.405	14	0.371	16	0.326	17	0.378	18
19	0.503	8	0.650	3	0.814	2	0.505	5
20	0.686	2	0.739	2	0.633	5	0.486	7
21	0.323	17	0.265	25	0.382	13	0.286	24
22	0.411	13	0.388	13	0.417	10	0.463	9
23	0.496	9	0.487	10	0.425	9	0.345	22
24	0.242	27	0.180	30	0.265	26	0.206	28
25	0.214	28	0.288	20	0.297	24	0.374	21
26	0.182	30	0.293	18	0.307	20	0.397	13
27	0.302	20	0.241	28	0.300	22	0.333	23
28	0.422	12	0.195	29	0.298	23	0.270	27
29	0.380	16	0.289	19	0.326	16	0.421	12
30	0.477	11	0.506	9	0.407	11	0.440	11
31	0.258	25	0.267	23	0.252	27	0.158	34
32	0.546	6	0.532	7	0.492	8	0.444	10
33	0.265	23	0.268	22	0.347	14	0.390	17
34	0.111	35	0.111	34	0.204	32	0.206	29
35	0.207	29	0.280	21	0.248	28	0.182	33
36	0.086	38	0.087	37	0.078	39	0.145	36
37	0.085	39	0.107	35	0.141	34	0.136	37
38	0.250	26	0.246	27	0.236	30	0.192	30
39	0.261	24	0.266	24	0.322	18	0.285	25

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$\underline{s}_j = \underline{i}' \underline{A}$

Table 3. Indirect Backward Linkages, l$_j$.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank		Value	Rank	Value
1	1.161	35	1.221	32	1.268	33	1.287	29
2	1.130	39	1.092	39	1.123	37	1.106	39
3	1.209	32	1.247	31	1.115	39	1.305	28
4	1.969	3	1.972	3	2.134	2	2.183	2
5	1.258	31	1.136	37	1.134	36	1.208	35
6	1.135	37	1.189	33	1.330	31	1.623	11
7	1.197	33	1.115	38	1.155	35	1.111	38
8	1.987	2	2.000	2	1.962	5	1.922	3
9	2.824	1	2.691	1	2.691	1	2.966	1
10	1.691	10	1.719	10	1.581	13	1.461	24
11	1.479	18	1.566	15	1.597	12	1.575	20
12	1.813	7	1.578	13	1.445	22	1.580	19
13	1.482	17	1.386	24	1.347	28	1.591	18
14	1.776	8	1.809	7	1.963	4	1.866	5
15	1.904	4	1.835	5	1.833	6	1.718	7
16	1.418	22	1.452	18	1.415	25	1.591	17
17	1.467	20	1.629	12	1.476	20	1.896	4
18	1.625	14	1.570	14	1.498	17	1.594	16
19	1.627	13	1.766	9	2.012	3	1.616	13
20	1.854	5	1.885	4	1.828	7	1.703	8
21	1.478	19	1.381	26	1.561	14	1.437	25
22	1.612	15	1.551	16	1.625	11	1.689	9
23	1.686	11	1.697	11	1.640	9	1.498	22
24	1.352	27	1.253	30	1.375	26	1.280	30
25	1.307	28	1.419	19	1.439	23	1.554	21
26	1.267	30	1.484	17	1.452	21	1.613	14
27	1.450	21	1.344	28	1.430	24	1.475	23
28	1.656	12	1.295	29	1.511	16	1.389	27
29	1.603	16	1.418	20	1.492	18	1.618	12
30	1.737	9	1.788	8	1.634	10	1.652	10
31	1.374	24	1.385	25	1.360	27	1.232	34
32	1.852	6	1.809	6	1.766	8	1.749	6
33	1.390	23	1.404	21	1.535	15	1.605	15
34	1.162	34	1.152	35	1.282	32	1.275	32
35	1.290	29	1.386	23	1.345	29	1.241	33
36	1.145	36	1.148	36	1.122	38	1.194	37
37	1.131	38	1.159	34	1.209	34	1.204	36
38	1.374	25	1.355	27	1.344	30	1.275	31
39	1.374	25	1.395	22	1.477	19	1.412	26

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$$\underline{l}_j = \underline{i}'(\underline{I}-\underline{A})^{-1}$$

Table 4. Index of Power Dispersion of Backward Linkages, q_j.

Sector	1983 Value	1983 Rank	1987 Value	1987 Rank	1991 Value	1991 Rank	2000 Value	2000 Rank
1	0.764	35	0.811	32	0.831	33	0.832	29
2	0.743	39	0.726	39	0.736	37	0.715	39
3	0.796	32	0.828	31	0.731	39	0.844	28
4	1.296	3	1.311	3	1.398	2	1.412	2
5	0.828	31	0.755	37	0.743	36	0.781	35
6	0.747	37	0.790	33	0.872	31	1.050	11
7	0.788	33	0.741	38	0.757	35	0.718	38
8	1.307	2	1.329	2	1.286	5	1.243	3
9	1.858	1	1.788	1	1.764	1	1.919	1
10	1.113	10	1.143	10	1.036	13	0.945	24
11	0.973	18	1.041	15	1.047	12	1.019	20
12	1.193	7	1.049	13	0.947	22	1.022	19
13	0.975	17	0.921	24	0.883	28	1.029	18
14	1.168	8	1.202	7	1.287	4	1.207	5
15	1.253	4	1.220	5	1.201	6	1.111	7
16	0.933	22	0.965	18	0.928	25	1.029	17
17	0.965	20	1.083	12	0.967	20	1.227	4
18	1.069	14	1.044	14	0.982	17	1.031	16
19	1.071	13	1.174	9	1.319	3	1.045	13
20	1.220	5	1.253	4	1.198	7	1.101	8
21	0.973	19	0.918	26	1.023	14	0.929	25
22	1.060	15	1.031	16	1.065	11	1.093	9
23	1.110	11	1.128	11	1.075	9	0.969	22
24	0.889	27	0.833	30	0.901	26	0.828	30
25	0.860	28	0.943	19	0.943	23	1.005	21
26	0.834	30	0.986	17	0.951	21	1.044	14
27	0.954	21	0.893	28	0.937	24	0.954	23
28	1.090	12	0.861	29	0.990	16	0.899	27
29	1.055	16	0.942	20	0.978	18	1.047	12
30	1.143	9	1.189	8	1.071	10	1.069	10
31	0.904	25	0.920	25	0.891	27	0.797	34
32	1.219	6	1.202	6	1.158	8	1.131	6
33	0.915	24	0.933	21	1.006	15	1.038	15
34	0.765	34	0.765	35	0.840	32	0.825	32
35	0.849	29	0.921	23	0.881	29	0.803	33
36	0.753	36	0.763	36	0.736	38	0.772	37
37	0.744	38	0.770	34	0.793	34	0.779	36
38	0.904	26	0.901	27	0.881	30	0.825	31
39	0.917	23	0.927	22	0.968	19	0.913	26

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$$q_j = \frac{1/n \; \underline{i}'(\underline{I}-\underline{A})^{-1}}{1/n^2 \; \underline{i}'(\underline{I}-\underline{A})^{-1}\underline{i}}$$

Table 5. Coefficient of Variation of Backward Linkages, J_j.

Sector	1983 Value	1983 Rank	1987 Value	1987 Rank	1991 Value	1991 Rank	2000 Value	2000 Rank
1	0.940	8	0.920	12	0.902	17	0.950	8
2	0.945	5	0.956	3	0.942	11	0.950	9
3	0.907	16	0.894	16	0.946	8	0.876	26
4	0.798	34	0.813	33	0.874	25	0.924	13
5	0.902	17	0.939	5	0.938	12	0.934	12
6	0.944	6	0.920	13	0.887	22	0.875	27
7	0.929	13	0.951	4	0.945	9	0.963	6
8	0.794	35	0.780	35	0.780	37	0.824	34
9	1.127	1	1.126	1	1.140	1	1.178	1
10	0.788	36	0.772	36	0.804	35	0.889	23
11	0.829	30	0.841	31	0.824	33	0.848	32
12	0.979	3	1.008	2	0.957	4	0.879	25
13	0.840	28	0.891	19	0.897	19	0.861	29
14	0.853	24	0.868	27	0.850	29	0.839	33
15	0.754	38	0.762	37	0.758	38	0.817	37
16	0.918	14	0.922	11	0.925	13	0.951	7
17	0.949	4	0.879	23	0.887	23	0.850	31
18	0.820	31	0.807	34	0.835	31	0.819	36
19	0.886	21	0.893	17	0.898	18	0.893	20
20	0.847	26	0.872	25	0.846	30	0.921	14
21	0.836	29	0.864	28	0.821	34	0.868	28
22	0.859	23	0.885	21	0.893	20	0.908	15
23	0.892	19	0.937	6	0.957	5	0.969	5
24	0.901	18	0.918	14	0.945	10	0.944	10
25	0.983	2	0.927	9	0.947	7	0.978	4
26	0.937	10	0.828	32	0.989	2	0.991	2
27	0.846	27	0.875	24	0.858	28	0.858	30
28	0.809	32	0.884	22	0.827	32	0.890	22
29	0.799	33	0.858	30	0.919	14	0.819	35
30	0.763	37	0.754	38	0.788	36	0.786	38
31	0.866	22	0.870	26	0.878	24	0.907	17
32	0.742	39	0.751	39	0.754	39	0.770	39
33	0.912	15	0.912	15	0.889	21	0.893	21
34	0.941	7	0.933	8	0.965	3	0.905	18
35	0.931	12	0.893	18	0.914	15	0.937	11
36	0.935	11	0.936	7	0.948	6	0.984	3
37	0.937	9	0.926	10	0.906	16	0.907	16
38	0.850	25	0.863	29	0.865	26	0.882	24
39	0.890	20	0.890	20	0.862	27	0.899	19

Sector Names: as shown in Table 1.
Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$$J_j = \sqrt{\dfrac{(1/n-1)\sum_{i=1}^{n}\left(c_{ij}-1/n\sum_{i=1}^{n}c_{ij}\right)^2}{1/n\sum_{i=1}^{j=1}c_{ij}}}$$

Table 6. Direct Forward Linkages, s_i.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	0.452	18	0.422	15	0.373	20	0.363	20
2	0.527	11	0.770	3	0.789	3	0.750	4
3	0.677	6	0.627	7	0.678	6	0.723	6
4	0.500	13	0.474	12	0.452	15	0.427	16
5	0.336	23	0.377	19	0.451	16	0.607	8
6	0.329	24	0.303	25	0.383	18	0.452	13
7	0.372	21	0.396	17	0.361	21	0.347	22
8	0.219	28	0.210	30	0.239	28	0.372	18
9	0.481	17	0.489	11	0.489	13	0.577	10
10	0.913	1	0.920	1	0.935	1	0.949	1
11	0.076	37	0.106	36	0.143	34	0.172	32
12	0.378	20	0.335	24	0.258	26	0.313	24
13	0.163	33	0.108	35	0.078	37	0.147	33
14	0.482	16	0.375	20	0.262	25	0.268	28
15	0.128	35	0.125	32	0.111	35	0.119	34
16	0.747	4	0.684	5	0.742	3	0.571	11
17	0.545	9	0.384	18	0.322	22	0.439	15
18	0.510	12	0.347	22	0.374	19	0.411	17
19	0.570	8	0.346	23	0.551	10	0.447	14
20	0.149	34	0.122	33	0.168	33	0.274	27
21	0.487	15	0.533	10	0.457	14	0.207	31
22	0.826	3	0.833	2	0.812	2	0.725	5
23	0.528	10	0.630	6	0.570	9	0.600	9
24	0.167	32	0.094	37	0.176	32	0.096	36
25	0.180	31	0.211	29	0.233	29	0.299	25
26	0.187	30	0.437	13	0.550	11	0.482	12
27	0.240	27	0.137	31	0.215	30	0.217	30
28	0.681	5	0.684	4	0.737	5	0.768	3
29	0.864	2	0.569	8	0.646	7	0.807	2
30	0.093	36	0.117	34	0.101	36	0.080	37
31	0.380	19	0.427	14	0.495	12	0.722	7
32	0.365	22	0.371	21	0.294	24	0.323	23
33	0.489	14	0.399	16	0.421	17	0.351	21
34	0.581	7	0.548	9	0.582	8	0.368	19
35	0.278	25	0.224	27	0.214	31	0.107	35
36	0.267	26	0.283	26	0.301	23	0.283	26
37	0.007	39	0.011	39	0.026	39	0.009	39
38	0.025	38	0.036	38	0.034	38	0.016	38
39	0.210	29	0.218	28	0.256	27	0.230	29

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$s_i = \underline{O} \; \underline{i}$

Table 7. Indirect Forward Linkages, l_i.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	1.664	17	1.591	18	1.537	21	1.688	17
2	1.637	18	1.900	8	1.967	7	2.052	6
3	2.300	2	2.216	2	2.315	2	2.602	2
4	1.699	15	1.662	13	1.671	14	1.689	16
5	1.545	22	1.560	19	1.604	18	1.852	10
6	1.514	24	1.453	25	1.541	20	1.709	15
7	1.678	16	1.642	14	1.646	17	1.596	19
8	1.324	28	1.314	29	1.349	26	1.569	20
9	1.921	9	1.943	6	1.945	9	2.254	3
10	2.563	1	2.752	1	2.779	1	2.668	1
11	1.109	37	1.140	36	1.203	34	1.244	32
12	1.555	21	1.461	24	1.328	28	1.406	26
13	1.217	33	1.141	35	1.099	37	1.182	33
14	1.610	19	1.479	23	1.329	27	1.338	29
15	1.161	35	1.153	34	1.148	36	1.140	35
16	2.158	4	2.069	4	2.177	3	1.910	9
17	1.980	8	1.666	12	1.522	22	1.732	14
18	1.753	12	1.518	22	1.557	19	1.620	18
19	1.991	7	1.546	20	1.954	8	1.794	12
20	1.205	34	1.169	32	1.227	33	1.404	27
21	1.718	14	1.758	11	1.661	16	1.290	30
22	2.051	6	2.103	3	2.096	5	1.980	7
23	1.723	13	1.918	7	1.835	12	1.822	11
24	1.220	32	1.128	37	1.232	32	1.120	37
25	1.244	31	1.301	30	1.326	29	1.440	24
26	1.275	30	1.641	15	1.905	10	1.764	13
27	1.327	27	1.189	31	1.297	31	1.289	31
28	2.077	5	2.058	5	2.166	4	2.193	5
29	2.263	3	1.840	9	2.021	6	2.239	4
30	1.134	36	1.169	33	1.152	35	1.126	36
31	1.577	20	1.624	16	1.714	13	1.976	8
32	1.530	23	1.535	21	1.442	24	1.513	23
33	1.763	11	1.617	17	1.662	15	1.525	21
34	1.858	10	1.796	10	1.887	11	1.520	22
35	1.427	25	1.340	27	1.326	30	1.150	34
36	1.384	26	1.406	26	1.463	23	1.418	25
37	1.010	39	1.018	39	1.043	39	1.016	39
38	1.031	38	1.043	38	1.047	38	1.023	38
39	1.297	29	1.317	28	1.388	25	1.346	28

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$l_i = (I-O)^{-1} i$

Table 8. Index of Sensitivity of Dispersion of Forward Linkages, q_i.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	1.038	17	1.014	18	0.958	21	1.042	17
2	1.022	18	1.211	8	1.226	7	1.266	6
3	1.435	2	1.412	2	1.443	2	1.606	2
4	1.060	15	1.060	13	1.042	14	1.042	16
5	0.964	22	0.994	19	1.000	18	1.143	10
6	0.945	24	0.926	25	0.961	20	1.055	15
7	1.047	16	1.047	14	1.026	17	0.985	19
8	0.826	28	0.838	29	0.841	26	0.968	20
9	1.199	9	1.239	6	1.212	9	1.391	3
10	1.599	1	1.755	1	1.732	1	1.646	1
11	0.692	37	0.727	36	0.750	34	0.767	32
12	0.971	21	0.932	24	0.828	28	0.867	26
13	0.759	33	0.728	35	0.685	37	0.729	33
14	1.005	19	0.943	23	0.828	27	0.826	29
15	0.724	35	0.735	34	0.716	36	0.704	35
16	1.346	4	1.319	4	1.357	3	1.179	9
17	1.236	8	1.062	12	0.949	22	1.069	14
18	1.094	12	0.968	22	0.970	19	1.000	18
19	1.242	7	0.985	20	1.218	8	1.107	12
20	0.752	34	0.745	32	0.765	33	0.866	27
21	1.072	14	1.120	11	1.036	16	0.796	30
22	1.280	6	1.340	3	1.306	5	1.222	7
23	1.075	13	1.223	7	1.144	12	1.124	11
24	0.762	32	0.719	37	0.768	32	0.691	37
25	0.776	31	0.829	30	0.827	29	0.889	24
26	0.796	30	1.046	15	1.187	10	1.088	13
27	0.828	27	0.758	31	0.809	31	0.796	31
28	1.296	5	1.312	5	1.350	4	1.353	5
29	1.412	3	1.173	9	1.260	6	1.382	4
30	0.708	36	0.745	33	0.718	35	0.695	36
31	0.984	20	1.035	16	1.068	13	1.220	8
32	0.955	23	0.979	21	0.899	24	0.933	23
33	1.100	11	1.031	17	1.036	15	0.941	21
34	1.159	10	1.145	10	1.177	11	0.938	22
35	0.891	25	0.854	27	0.826	30	0.710	34
36	0.864	26	0.897	26	0.912	23	0.875	25
37	0.630	39	0.649	39	0.650	39	0.627	39
38	0.643	38	0.665	38	0.653	38	0.631	38
39	0.810	29	0.840	28	0.865	25	0.831	28

Sector Names: as shown in Table 1.

Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$$q_i = \frac{1/n\,(\underline{I}-\underline{O})^{-1}\underline{i}}{1/n^2\,\underline{i}'(\underline{I}-\underline{O})^{-1}\underline{i}}$$

Table 9. Coefficient Variation of Forward Linkages, J_i.

Sector	1983		1987		1991		2000	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
1	0.813	29	0.834	29	0.837	28	0.852	30
2	0.883	23	0.918	16	0.918	19	0.916	20
3	1.023	3	0.975	7	1.009	2	1.019	2
4	0.884	22	0.901	20	0.963	11	1.006	6
5	0.853	24	0.854	23	0.864	25	0.809	35
6	0.827	26	0.841	27	0.846	27	0.867	28
7	0.800	32	0.796	33	0.805	32	0.822	33
8	0.962	7	0.949	11	0.938	15	0.924	17
9	1.317	1	1.286	1	1.303	1	1.322	1
10	0.886	18	0.929	13	0.971	10	0.976	11
11	0.961	8	0.989	4	0.954	12	0.959	13
12	1.060	2	1.051	2	1.002	3	0.940	16
13	0.923	15	0.981	6	0.994	5	0.998	8
14	0.905	16	0.916	18	0.952	13	0.914	23
15	0.932	13	0.948	12	0.952	14	1.004	7
16	0.754	35	0.777	35	0.751	38	0.866	29
17	0.816	28	0.847	25	0.868	24	0.883	27
18	0.791	33	0.820	30	0.817	31	0.811	34
19	0.740	37	0.839	28	0.761	37	0.800	36
20	0.949	10	0.972	8	0.981	8	1.011	4
21	0.777	34	0.768	36	0.795	34	0.916	21
22	0.896	17	0.881	22	0.891	21	0.909	24
23	0.884	21	0.900	21	0.919	18	0.898	26
24	0.949	9	0.967	10	0.998	4	1.010	5
25	1.009	4	0.968	9	0.987	6	1.017	3
26	0.935	12	0.792	34	0.872	23	0.954	14
27	0.885	19	0.928	15	0.896	20	0.917	19
28	0.690	38	0.695	39	0.687	39	0.703	38
29	0.672	39	0.748	38	0.788	35	0.698	39
30	0.945	11	0.929	14	0.937	16	0.948	15
31	0.807	31	0.801	32	0.786	36	0.756	37
32	0.819	27	0.818	31	0.835	29	0.829	31
33	0.811	30	0.849	24	0.854	26	0.915	22
34	0.750	36	0.752	37	0.798	33	0.827	32
35	0.884	20	0.907	19	0.920	17	0.974	12
36	0.848	25	0.842	26	0.830	30	0.901	25
37	0.995	5	0.991	3	0.979	9	0.992	9
38	0.988	6	0.989	5	0.985	7	0.990	10
39	0.925	14	0.917	17	0.889	22	0.922	18

Sector Names: as shown in Table 1.
Source: Malaysian Input-Output Tables for 1983, 1987, 1991, and 2000.

$$J_i = \sqrt{\frac{(1/n-1)\sum_{j=1}^{n}\left(v_{ij} - 1/n\sum_{j=1}^{n}v_{ij}\right)^2}{1/n\sum_{j=1}^{n}v_{ij}}}$$

Table 10. Backward and Forward Linkages for 1983.

Industrial Sectors	Linkages effect	Coefficient of Variation
Backward Linkage	$q_j > 1$	J_j
1. Oils and Fats product	1.858	1.127
2. Foods Production other	1.307	0.794
3. Livestock breeding, etc	1.296	0.798
4. Furniture & Fixtures	1.253	0.754
5. Processed Rubber & Rubber Product	1.220	0.847
6. Hotel & Restaurants	1.219	0.742
7. Textile Products	1.193	0.979
8. Wooden Products	1.168	0.853
9. Building & Construction	1.143	0.763
10. Animal Feeds product	1.113	0.788
11. Basic Metal & Other Metal Product	1.110	0.892
12. Electricity & Gas	1.090	0.809
13. Petroleum, Coal Product	1.071	0.886
14. Paints, Lacquers & Other Chemical Product	1.069	0.820
15. China, Glass, Clay, cement & Other Non-met Mineral Products	1.060	0.859
16. Water works and supply	1.055	0.799
Forward Linkage	$q_i > 1$	J_i
1. Animal Feeds product	1.599	0.886
2. Oil palm primary products	1.435	1.023
3. Water works and supply	1.412	0.672
4. Paper & Printing Products	1.346	0.754
5. Electricity & Gas	1.296	0.690
6. China, Glass, Clay, cement & Other Non-met Mineral Products	1.280	0.896
7. Petroleum, Coal Product	1.242	0.740
8. Industrial Chemicals	1.236	0.816
9 Oils and Fats product	1.199	1.317
10. Communication	1.159	0.750
11. Transport	1.100	0.811
12. Paints, Lacquers & Other Chemical Product	1.094	0.791
13. Basic Metal & Other Metal Product	1.075	0.884
14. Plastic Products	1.072	0.777
15. Livestock breeding, etc	1.060	0.884
16. Crude oil, Gas, Mining, Quarrying Product	1.047	0.800
17. Agriculture products other	1.038	0.813
18. Rubber primary products	1.022	0.883
19. Wooden Products	1.005	0.905

Source: Tables,4-5 and 8-9.

Table 11. Backward and Forward Linkages for 1987.

Industrial Sectors	Linkages effect	Coefficient of Variation
Backward Linkage	$q_j > 1$	J_j
1. Oils and Fats product	1.788	1.126
2. Foods Production other	1.329	0.780
3. Livestock breeding, etc	1.311	0.813
4. Processed Rubber & Rubber Product	1.253	0.872
5. Furniture & Fixtures	1.220	0.762
6. Hotel & Restaurants	1.202	0.751
7. Wooden Products	1.202	0.868
8. Building & Construction	1.189	0.754
9. Petroleum, Coal Product	1.174	0.893
10. Animal Feeds product	1.143	0.772
11. Basic Metal & Other Metal Product	1.128	0.937
12. Industrial Chemicals	1.083	0.879
13. Textile Products	1.049	1.008
14. Paints, Lacquers & Other Chemical Product	1.044	0.807
15. Beverages &Tobacco product	1.041	0.841
16. China, Glass, Clay, cement & Other Non-met Mineral Products	1.031	0.885
Forward Linkage	$q_i > 1$	J_i
1. Animal Feeds product	1.755	0.929
2. Oil palm primary products	1.412	0.975
3. China, Glass, Clay, cement & Other Non-met Mineral Products	1.340	0.881
4. Paper & Printing Products	1.319	0.777
5. Electricity & Gas	1.312	0.695
6. Oils and Fats product	1.239	1.286
7. Basic Metal & Other Metal Product	1.223	0.900
8. Rubber primary products	1.211	0.918
9. Water works and supply	1.173	0.748
10. Communication	1.145	0.752
11. Plastic Products	1.120	0.768
12. Industrial Chemicals	1.062	0.847
13. Livestock breeding, etc	1.060	0.901
14. Crude oil, Gas, Mining, Quarrying Product	1.047	0.796
15. Other Transport Equipment	1.046	0.792
16. Wholesale &Retail Trade	1.035	0.801
17. Transport	1.031	0.849
18. Agriculture products other	1.014	0.834

Source: Tables,4-5 and 8-9.

Table 12. Backward and Forward Linkages for 1991.

Industrial Sectors	Linkages effect	Coefficient of Variation
Backward Linkage	$q_j > 1$	J_j
1. Oils and Fats product	1.764	1.140
2. Livestock breeding, etc	1.398	0.874
3. Petroleum, Coal Product	1.319	0.898
4. Wooden Products	1.287	0.850
5. Foods Production other	1.286	0.780
6. Furniture & Fixtures	1.201	0.758
7. Processed Rubber & Rubber Product	1.198	0.846
8. Hotel & Restaurants	1.158	0.754
9. Basic Metal & Other Metal Product	1.075	0.957
10. Building & Construction	1.071	0.788
11. China, Glass, Clay, cement & Other Non-met Mineral Products	1.065	0.893
12. Beverages &Tobacco product	1.047	0.824
13. Animal Feeds product	1.036	0.804
14. Plastic Products	1.023	0.821
15. Transport	1.006	0.889
Forward Linkage	$q_i > 1$	J_i
1. Animal Feeds product	1.732	0.971
2. Oil palm primary products	1.443	1.009
3. Paper & Printing Products	1.357	0.751
4. Electricity & Gas	1.350	0.684
5. China, Glass, Clay, cement & Other Non-met Mineral Products	1.306	0.891
6. Water works and supply	1.260	0.788
7. Rubber primary products	1.226	0.918
8. Petroleum, Coal Product	1.218	0.761
9. Oils and Fats product	1.212	1.303
10. Other Transport Equipment	1.187	0.872
11. Communication	1.177	0.798
12. Basic Metal & Other Metal Product	1.144	0.919
13. Wholesale &Retail Trade	1.068	0.786
14. Livestock breeding, etc	1.042	0.963
15. Transport	1.036	0.854
16. Plastic Products	1.036	0.795
17. Crude oil, Gas, Mining, Quarrying Product	1.026	0.805
18. Forestry, logging product	1.000	0.864

Source: Tables,4-5 and 8-9.

Table 13. Backward and Forward Linkages for 2000.

Industrial Sectors	Linkages effect	Coefficient of Variation
Backward Linkage	$q_j > 1$	J_j
1. Oils and Fats product	1.919	1.178
2. Livestock breeding, etc	1.412	0.924
3. Foods Production other	1.243	0.824
4. Industrial Chemicals	1.227	0.850
5. Wooden Products	1.207	0.839
6. Hotel & Restaurants	1.131	0.770
7. Furniture & Fixtures	1.111	0.817
8. Processed Rubber & Rubber Product	1.101	0.921
9. China, Glass, Clay, cement & Other Non-met Mineral Products	1.093	0.908
10. Building & Construction	1.069	0.786
11. Fishing, etc	1.050	0.875
12. Water works and supply	1.047	0.819
13. Petroleum, Coal Product	1.045	0.893
14. Other Transport Equipment	1.044	0.991
15. Transport	1.038	0.893
16. Paints, Lacquers & Other Chemical Product	1.031	0.819
17. Paper & Printing Products	1.029	0.951
18. Wearing Apparel	1.029	0.861
19. Textile Products	1.022	0.879
20. Beverages &Tobacco product	1.019	0.848
21. Motor Vehicle Manufacturing	1.005	0.978
Forward Linkage	$q_i > 1$	J_i
1. Animal Feeds product	1.646	0.976
2. Oil palm primary products	1.606	1.019
3. Oils and Fats product	1.391	1.322
4. Water works and supply	1.382	0.698
5. Electricity & Gas	1.353	0.703
6. Rubber primary products	1.266	0.916
7. China, Glass, Clay, cement & Other Non-met Mineral Products	1.222	0.909
8. Wholesale &Retail Trade	1.220	0.756
9. Paper & Printing Products	1.179	0.866
10. Forestry, logging product	1.143	0.809
11. Basic Metal & Other Metal Product	1.124	0.898
12. Petroleum, Coal Product	1.107	0.800
13. Other Transport Equipment	1.088	0.954
14. Industrial Chemicals	1.069	0.883
15. Fishing, etc	1.055	0.867
16. Livestock breeding, etc	1.042	1.006
17. Agriculture products other	1.042	0.852
18. Paints, Lacquers & Other Chemical Product	1.000	0.811

Source: Tables 4-5 and 8-9.

Table 14. key Sectors of the Malaysian Economy.

1983	1987
1. Oils & Fats product	1. Oils & Fats product
2. Livestock breeding	2. Livestock breeding
3. Wooden Products	3. Animals Feeds product
4. Animals Feeds product	4. Basic Metal
5. Basic Metal	5. Industrial Chemical
6. Electricity & Gas	6. China, Glass, Cement & Non met Mineral Products
7. Petroleum & Coal product	
8. Paints, Lacquers & Other Chemical Product	
9. China, Glass, Cement & Non met Mineral Products	
10. Water works & Supply	
1991	**2000**
1. Oils & Fats product	1. Oils & Fats product
2. Livestock breeding	2. Livestock breeding
3. Petroleum & Coal product	3. Industrial Chemical
4. China, Glass, Cement & Non met Mineral Products	4. China, Glass, Cement & Non met Mineral Products
5. Animals Feeds product	5. Fishing
6. Plastic Products	6. Water works & Supply
7. Transport	7. Petroleum & Coal product
	8. Other transport Equipment
	9. Paints, Lacquers & Other Chemical Product
	10. Paper & Printing Products

Source: Tables 10-13.

Table 15. Matrix of Rank Correlation Coefficients among Linkage Indices for 1983.

	s_j	s_i	l_j	l_i	q_j	q_i	J_j	J_i
s_j	1							
s_i	0.0969	1						
l_j	0.966	0.112783	1					
li	0.0969	0.972967	0.131087	1				
q_j	0.966	0.111953	0.999955	0.130376	1			
q_i	0.0969	0.973002	0.131188	0.999999	0.13048	1		
J_j	-0.2456	-0.00138	-0.12291	0.058015	-0.12302	0.058389	1	
J_i	0.3331	-0.42158	0.442739	-0.35276	0.443106	-0.3525	0.409292	1

Source: Tables 2-9.

Table 16. Matrix of Rank Correlation Coefficients among Linkage Indices for 1987.

	s_j	s_i	l_j	l_i	q_j	q_i	J_j	J_i
s_j	1							
s_i	-0.06568	1						
l_j	0.953048	-0.00385	1					
li	-0.01924	0.964659	0.065218	1				
q_j	0.953151	-0.00394	0.999999	0.065068	1			
q_i	-0.01898	0.964576	0.06564	0.999999	0.065491	1		
J_j	-0.19741	0.121838	-0.10686	0.114157	-0.1074	0.114129	1	
J_i	0.413807	-0.33955	0.519847	-0.24867	0.519726	-0.24834	0.348589	1

Source: Tables 2-9.

Table 17. Matrix of Rank Correlation Coefficients among Linkage Indices for 1991.

	s_j	s_i	l_j	l_i	q_j	q_i	J_j	J_i
s_j	1							
s	-0.06199	1						
l_j	0.961125	-0.01707	1					
li	-0.02785	0.969754	0.032206	1				
q_j	0.961157	-0.01725	0.999999	0.032071	1			
q_i	-0.02795	0.969766	0.032094	0.999999	0.031959	1		
J_j	-0.13615	0.237234	-0.04183	0.246496	-0.0418	0.246382	1	
J_i	0.305599	-0.31214	0.428074	-0.232	0.428136	-0.23221	0.343549	1

Source: Tables 2-9.

Table 18. Matrix of Rank Correlation Coefficients among Linkage Indices for 2000.

	s_j	s_i	l_j	l_i	q_j	q_i	J_j	J_i
s_j	1							
s_i	0.013846	1						
l_j	0.951798	0.070554	1					
li	0.061896	0.960242	0.15257	1				
q_i	0.951765	0.070745	0.999999	0.152714	1			
q_i	0.061775	0.960227	0.152441	0.999999	0.152585	1		
J_j	0.007555	0.197217	0.190413	0.256371	0.190385	0.25636	1	
J_i	0.380476	-0.30659	0.511522	-0.15187	0.511404	-0.15207	0.472582	1

Source: Tables 2-9.

Pharmaceutical Enterprises' R&D Strategic Alliance

—— the Road for Small and Medium Sized Pharmaceutical Enterprises' R&D in China

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Abstract

Based on analyzing the status of small and medium-sized pharmaceutical enterprises in China, the paper explores the problems of these enterprises; Then it provided several feasible development strategies which are building pharmaceutical enterprises' R&D strategic alliance, starting from the corporate strategic view and combining with the R&D characteristics of small and medium sized pharmaceutical companies; Finally in order to ensure the Effectiveness of R & D alliance, we point out some points of what should be noted in the process.

Keywords: Small and medium-sized pharmaceutical enterprises, R&D, Strategic Alliance

Constant new drugs are the main source backing up the core competitiveness of pharmaceutical companies and maintaining competitive position in the market. The cycle of global pharmaceutical R&D is longer and the cost is much higher. The pharmaceutical industry's character "high investment, high-risk, high-profit" is embodied in pharmaceutical research and development links. In 2003, FDA only approved 35 new drugs. At the same time, Pfizer and GSK, two of the world's largest pharmaceutical companies, developed 3 new drugs since 2000. Ten years ago, the cost of developing a new drug was an average of 2000 million in Europe and in the United States, but now it has risen to more than 1 billion U.S. dollars (Xu,2005,P.61-64).

New Drug R&D is a system engineering, so it is impossible for the small and medium pharmaceutical companies' R&D departments to complete all the work independently. But they can combine with other small and medium pharmaceutical companies' R&D departments to share the R&D costs, R&D risks and R&D interests. For small and medium sized pharmaceutical enterprises in China, the pharmaceutical enterprises' R&D Strategic Alliance is a effective way to shorten R&D time, share the costs and reduce the risk.

1. The R&D Status of small and medium sized pharmaceutical enterprises in China

1.1 The definition of small and medium sized pharmaceutical enterprises

According to "The notice with regard to the issuance of the interim standards for small and medium enterprises" (SMEs Guojing Mao (2003). No.143), the industrial small and medium enterprises must meet the following criteria: the number of employees is under 2,000, the sales under 300 million Yuan, or the total assets under 400 million Yuan. Among them, medium-sized enterprises must make sure that the number of workers is over 300, the sales over 30 million Yuan and total assets over 40 million Yuan. In this article, the small and medium sized pharmaceutical enterprises are referred to the medical companies which the sales under 1 billion Yuan.

The R&D of small and medium enterprises in China has the following features: small size, short of capital, low level of technology and less competitive in the market. New drug development requires a lot of manpower, material and financial resources. So for many existing small and medium sized pharmaceutical enterprises, new drug development rely mainly on "me-too" drugs and few companies are able to develop pharmaceutical products with independent intellectual property rights due to the power constraints such as its scale, capital and human resources.

1.2 China's small and medium sized enterprises pharmaceutical R&D contrast with large pharmaceutical companies

1.2.1 R&D personal

China Statistical Yearbook data on high-tech industry statistics shows: in 2007,there are 5748 enterprises in China's pharmaceutical manufacturing industry, of which there are 67 large-scale pharmaceutical enterprises and 5681small and medium enterprises; in 2006, the number of employees in China's Pharmaceutical Industry was 1.3 million, of which there are 245.2 thousand employees in large enterprises, accounting for 18.82% of the total and 1.0576 million employees in small and medium enterprises, accounting for 81.18% of the total; in 2007,china has 30778 full-time

equivalent of R&D personnel. Among them there are 11770 persons in large enterprises, accounting for 38.24% of the total and an average R&D personal of an large enterprise is 176. And it has 19008 persons in small and medium enterprises, accounting for 61.76% of the total and an average R&D personal of a small and medium enterprise is only 3.3. Therefore, the R&D in small and medium sized pharmaceutical enterprises is far less than the large pharmaceutical companies. The lack of new drug R&D talented person greatly limits the R&D capability of small and medium sized pharmaceutical enterprises in China.

1.2.2 R&D investment

In 2005, the percentage of the entire pharmaceutical industry R&D investment in sales revenue is only 1.02%. Apart from Jiangsu Hengrui Medicine Co., Ltd, whose R&D investment Is 6.94%,the proportion of R&D investment in others is still at a very low level(Liu,2007,P.36-38). According to the China Statistical Yearbook data on high-tech industry statistics, in 2007, the R&D investment of pharmaceutical industry is 6.6 billion Yuan, among which Large pharmaceutical companies spend 2.6 billion Yuan, accounting for 39.6% of the total, and the average is 38.9 million Yuan in every large enterprise; While that is 4.0 billion Yuan in small and medium enterprises, accounting for   60.39% of the total and the average is only 700.4 thousand Yuan in an small and medium enterprise. Because of limited investment in innovation, the research capacity of new drugs is low and Chinese enterprises rely too much on "me-too" drugs, less on innovative drugs. Domestic small and medium sized pharmaceutical companies are still focused on the more mature and relatively low-tech production. Which result in the varieties of similar productions, excessive capacity, Serious duplication, the lack of variety and technological innovation and homogenization of market competition. At this state, the enterprises can not enter the track of healthy development, which constraining the healthy development of China's pharmaceutical enterprises.

1.2.3 R&D System

The large pharmaceutical companies gradually set up a sound system for new drug research and development, found its own engineering and technology research and development centers as well as drug non-clinical safety evaluation laboratories. They can concentrate on their own advantage of core technology and core industries; meanwhile sustain the country's leading technology in the medical high-tech technology research. Many small and medium enterprises adopt a top-down "classroom model" in R&D. The topics and direction made by higher leadership is arranged down to R&D personnel. Then, there are two ways for researchers to choose: one is choosing and playing independently along the major directions and topics; the other is in full compliance with company CEOs, which is a record R&D system(Hong,2004). This system impedes the development of new drug R&D in small and medium pharmaceutical companies.

According to China's current conditions, it is hard for small and medium pharmaceutical companies to do new drug R&D independently. Therefore, to establish R&D strategic alliances is the only way for small and medium sized pharmaceutical enterprises.

2. Small and medium sized pharmaceutical enterprises' R&D strategic alliance

2.1 The definition of strategic alliance

The strategic alliance refers to a loose network formed by two or more companies for a certain purpose or to achieve strategic objectives, through a certain form composed of complementary advantages, risk sharing, two-way or multi flow of elements. Strategic alliances are spontaneous, non-coercive and the Union parties maintain the independence of the existing business operations. It also has characteristics of fuzzy boundaries, operational efficiency, and flexibility(Porter,M.E.,1997,P.56).

2.2 The needs of small and medium sized pharmaceutical enterprises to implement the Strategic Alliance

2.2.1 To solve short of capital and high risk for small and medium pharmaceutical companies

Implementing strategic alliances can make small and medium pharmaceutical companies achieve the goal which is resource sharing, resource complementing, reducing repetitive waste of resources, and focusing the capital, talent advantages on core project. With the use of other companies R&D results, they can compensate for the lack of corporate R&D resources to avoid putting in a lot of new drug R&D funds, thereby saving the cost of scientific research. At the same time, this R&D system which is implemented the Strategic Alliance, Refrain a number of enterprises from being engaged in a lot of research and development, and thus save the corresponding R & D process management costs. In addition, the R & D alliances between enterprises greatly reduce risk and increase the chances of success. And the enormous economic benefits that successful new products bring are immeasurable.

2.2.2 To solve low technological level for small and medium pharmaceutical companies

Small and medium enterprises can learn from other enterprise technical know-how or some capacity through strategic alliances. The growth and development of enterprise is inseparable from their own quality improvement, new knowledge and new skills to learn. Learning form Coalition partner enterprise will also face being imitated, so

enterprises often want to learn faster than competitors, so that in the league will have a "learning race" phenomenon. Pharmaceutical enterprises' R&D Strategic Alliance not only promote the interaction and learning between enterprises, universities and research institutions, but also internalize external information and knowledge, activate the enterprise's internal resources and improve the competitiveness of knowledge-building and organization, which will involve more technology , human resources, capital and project inputs.

2.2.3 To solve the small-scale problem for small and medium pharmaceutical companies

Being implementing strategic alliances, small and medium pharmaceutical enterprises can combine together as a whole, which will deepen the division of labor and strengthen technological progress. So capital, technology, manpower, material resources, information and other resources among the different enterprises can be effectively flexibly mixed, which is to minimize product development costs. Large laboratory can buy more specialized equipment, so that experimental activities will be more effective. The problem which can not be solved before by the use of a particular field of subject knowledge alone will be solved by different experts in the field of technical cooperation. Thereby, economies of scale have come into being in research and development.

3. The choice of small and medium sized pharmaceutical enterprises' R&D strategic alliance

3.1 The patterns of small and medium sized pharmaceutical enterprises' R&D strategic alliance

At present, China's pharmaceutical enterprises R & D strategic alliances have the following two modes (Zhang,2009,P.95-97): One is an equity strategic alliance. Many producing, learning and researching centers build a community by joint venture which is a relatively strong knowledge of innovation and share results of joint research and development, and based on optimizing the human resources and inputs within the Union. It is founded by the members as shareholders, who have their own separate assets, personnel and management authority. Equity-type strategic alliances generally do not include the core business of members; the other is virtual non-equity based strategic alliances. Many industry, academia, research, suppliers, dealers, finance, securities, venture capital providers, and the ILO establish an extremely loose virtual network communities through agreements, contracts and negotiations, based on loose virtual network combining elements within the Union. When the core business within the union members is the same with the alliances and partners are unable to move its assets off the core business, or in order to achieve greater flexibility in contraction and expansion, virtual non-equity based strategic alliances will emerge when partners do not want to establish an independent joint venture companies.

The values of the two kinds of R&D strategic alliance model are embodied in sharing of complementary research results, reducing development costs, sharing risks and achieving sustained development of cost competitiveness. According to China's current status of pharmaceutical enterprises, small and medium pharmaceutical companies are more suitable for the virtual non-equity based strategic alliance.

3.2 The support system of small and medium sized pharmaceutical enterprises' R&D strategic alliance

Based on the characteristics of new drug development and combined with the actual situation, effective implementation of the R&D strategic alliance must depend on the support of a sound guarantee system (Wang,2005,P.111-113):

3.2.1 Information exchange platform

An information exchange platform is established between research institutions of pharmaceutical companies or between medical institutions and pharmaceutical R&D enterprise. It can fully utilize the research results of the large number of scientific research institutions, with access to medical research results that they are lack of and the heterogeneous resources which are hard to replace, and finally realize resource sharing and complementing. By establishing good partnerships with research institutions, small and medium pharmaceutical companies expand variety of products effectively; filter out products that have bright market prospects, high technology content and reliable quality. This can effectively guarantee that small and medium sized pharmaceutical enterprises can develop in the fierce market competition.

3.2.2 Businesses

Enterprises in the pharmaceutical industry include pharmaceutical manufacturers and pharmaceutical commercial enterprises. The smooth functioning of the platform needs a strategic alliance formed by pharmaceutical companies and a number of medical research institutions. This is a unilateral contract-based strategic alliance that is, a one-way economic behavior, that pharmaceutical companies purchase the research results from scientific research institutions; This alliance is formed through the combination of resources, using the complementary resource combinations and in order to achieve the aim that is complementary advantages and improving the competitive advantage between enterprises and research institutions.

3.2.3 Auxiliary organizations

Here, the auxiliary organizations include suppliers, public service institutions, venture capital institutions and other

financial institutions. It is a unilateral contractual relationship established between auxiliary organizations and scientific institutions of the alliance, so it can adjust to accordingly with the external environment. In this relationship, the pharmaceutical business decision-making has greater flexibility: carrying out amendments according to the market dynamics, selecting the appropriate alliance members (research institutions), which can respond to changing market demands and maintain their market status. This flexibility and energy make the company continue to obtain scientific research of their own needs, accordingly reduce their capital investment in scientific research and achieve low-cost market expansion strategy.

3.3 The issue should be paid attention to in Union

Through strategic alliances, small and medium sized pharmaceutical enterprises' R&D not only can reduce the human, material and financial resources investment, but also the risk of new drug development, increasing the probability of a successful new drug development. However, there are still a lot of problems in the process of establishing strategic alliances (Wang,2007,P.167-168),(Lin,2004,P.16-18),(Parkhe A,1991,P.579-601):

(1) Conflict of interests among members of the alliance

The R&D strategic alliance reflects the cooperative and competitive strategic, including co-operation with competitors. This idea of competition through cooperation breaks the traditional strategy of confrontation. It is a cooperative game behavior, which is contributed to the overall friction reduction and makes full use of social resources. However, as time goes by, their interests may diverge because there are multiple partners. The alliance members must strengthen their own position.

(2) The inconsistencies of the Alliance's members

Strategic Alliance is the basic organization of enterprise strategies. Small and medium sized pharmaceutical enterprises' R&D strategic alliances have shifted the scope of competition from the enterprise to networks. The survival and development of strategic networks is closely related to the enterprise. Therefore, the small and medium sized pharmaceutical companies have to make itself as a node of the network, develop business strategies from the perspective of the strategic network and overcome the traditional strategy that the enterprise is as an autonomous entity of the state. However, it is dangerous to be over-relied on partners, suppliers or others outside the companies. Many small and flexible pharmaceutical companies are simply unable to organize coordination and cooperation in other pharmaceutical companies. When an innovation relies on a number of interdependent innovations, that is when the innovation is systemic, mutually independent companies often fail to coordinate and cooperate, nor can combine a range of innovative work closely together.

(3) The members of the Alliance pursue their own interests

The objectives of the strategic alliance should not only consider their own interests, but also consider the common interests of network. Strategic Alliance emphasizes the interactive relationship between businesses and other organizations, which decides that enterprises also highlight common interests, not just their own interests when they study the competitive advantage. For the common interests, enterprises is no longer meant to study whether it is advantageous for its own businesses in the strategic formulation, is no longer meant to study whether it is advantage but to the entire strategic alliance. However, with the incentive and the risk increasing, market-based co-operation of parties will become increasingly difficult. As time goes by, the result of innovation may be a surprise - perhaps not all participants can benefit from it, because too many interests involved and each act of partners starting from its own interests. As a result, previous friendly partners may be unwilling or simply unable to conclude alliances and cooperative projects which fall into this quagmire.

(4) The members of the Alliance pursue their own resource advantages

The competitive advantage of small and medium sized pharmaceutical enterprises' R&D strategic alliance derived from the resources, capabilities which all nodes in the strategic alliance network contributed and the integration of these resources by network. Each node focus on the comparative advantage activities in the value chain, effectively bring leverage into play and achieve competitive advantage. At the same time, all nodes contribute their core competencies to the network, resulting in a positive "network effects" by integration and management of the network value chain, and also access to a competitive network advantage. By using markets and external company, collaborative innovation has a variety of benefits: such as the rapid technological development, and technical improvements based on their resources. However, the open architecture as well as the retailer's independence will bring uninvited guests; some organization's network partner separate and choose at the fresh start; the same time, manufacturers who produce the same products will also emerge. Because other companies can buy the same raw materials, and sell by the same sales channel, this way, the companies can hardly control any critical resources, thus they are unable to establish their own competitive advantage. In order to maintain a leading technology status, companies must conduct a systematic technical collaboration tasks. However, when the initial joint-ventures are independent from each other, it is difficult to coordinate and cooperate.

(5) To collect information on new technologies and new product

Small and medium sized pharmaceutical enterprises' R&D strategic alliance will greatly affect Information Flow which plays a key role in innovation. As the company's managers continue to absorb new research results, the information about new technologies and new products which also conclude the early results of product testing and the initial customer feedback is also constantly expanding. Thus, if a research and development is carried out to achieve commercialization and profits, they must obtain large amounts of information from the rivals, customers and even researchers and carry out digestion and absorption. Such a vast and complex information-gathering and processing will not be easy, but if they can be handled in a systematically order, the task will be easier.

Small and medium sized pharmaceutical enterprises' R&D strategic alliance will suffer those problems, because the alliance can not overcome regulatory barriers between enterprise members. Alliance members have different interests, objectives and operating direction, when its benefit is greater than it created, the companies will be out of the alliance, the Union also dissolved. This alliance established by the company is flexible and dynamic then the relationship between members of the alliance is relatively loose, so the conflict of interest between members is less likely to happen. The responsibilities of members are very clear. There is no need to manage member firms strictly, thereby it will reduce the chance of regulatory barriers and the company can also effectively reduce the management costs.

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Key Drivers of Guanxi in China among Taiwanese

Small to Medium-Sized Firms

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Abstract

As China has emerged as one of the world's economic powerhouses, research on guanxi, or social/business ties in China, becomes more common. This study employs a theoretical framework of social embeddedness, in which the flows of information, resources, and opportunities occur across recognized members of a social network to create mutual benefits. With this framework, the authors empirically investigate impetuses for Taiwanese small to medium-sized firms (SMEs) to employ guanxi networks with their business community, local governments, and the central Chinese government. The study results indicate that the extent to which Tawanese firms use different types of guanxi differ by firm characteristics (i.e., resources, capabilities, and entry mode) and market factors (i.e., market stability and competition).

Keywords: Guanxi, SMEs, Foreign Investment

1. Introduction

Social capital theory suggests that a social network provides value to its members by granting them access to resources embedded within the network. Social capital in particular constitutes a resource available to actors as a reflection of their position within the structure of their social relations. Accordingly, information about new ideas and opportunities typically moves through the interpersonal ties that link people in separate social clusters (Granovetter, 1973). In this sense, social relations affect competition among firms by creating entrepreneurial opportunities for some firms and not for others. Guanxi, or the use of both social and business ties, effectively and critically supports such social capital purposes (Yang, 1994). The concept has existed in the Chinese social structure for eons; traditionally though, guanxi was a web of extended families, tied by sentiment and family obligations, that influenced the code of conduct of individual members of those families. In the modern business environment, it has come to refer to exchange networks of businesses that pursue mutual benefits, which makes it critical to facilitating modern business transactions. Chinese firms use their guanxi networks to mitigate their competitive and structural disadvantages and develop interdependent relationships with government authorities and competitors (Park & Luo, 2001). As Nahapiet and Ghoshal (1998, p. 252) put it, "Who you know affects what you know." The access to information and resources depends largely on existing social ties that link an actor to others who have some form of connection, for example, to a particular foreign market.

Recently, guanxi research in the context of foreign direct investment (FDI) has drawn increasing attention, especially from U.S. scholars as China has emerged as an economic force and an attractive target for FDI. The FDI inflows to China for 2006 reached approximately $60 billion (Ramat-Gan, 2006). As of 2003, Hong Kong was the largest foreign investor in China, followed by Japan and the United States (Frey, 2005). Thus, most existing guanxi research in the

context of FDI centers on Hong Kong businesses (e.g., Ho & Perry, 1996; Leung, Wong, & Wong, 1996; Yau, Chan, & Lau, 1999).

Guanxi studies in an FDI context mainly focus on its role in entry mode decisions. For example, several studies from a Western executive perspective note that guanxi distinguishes Western and Eastern concepts of relationship marketing (Ambler, 1994; Bjorkman & Kock, 1995; Brunner, Chen, Chao, & Zhao 1989; Yeung & Tung, 1996). Thus, existing literature argues that it is critical for foreign investors to form joint ventures with Chinese partners to obtain guanxi networks and thereby access to local knowledge and distribution channels (Teng, 2004).

As a part of this ongoing guanxi research, this study contributes to our body of knowledge on two fronts. First, we perform our investigation with Taiwanese companies, unlike existing studies that engage Hong Kong– and Singapore-based firms. Specifically, this study addresses Taiwanese small and medium-sized enterprises (SMEs) that invest in the Chinese market but generally lack certain firm capabilities. Second, we theorize and test potential impetuses for different types of guanxi (e.g., with Chinese firms, local governments, the central Chinese government) based on firm characteristics (e.g., resources, skills, entry mode) and market characteristics (e.g., market stability, competition). That is, rather than focusing on the outcome of the guanxi that foreign firms can develop in China, this study emphasizes major drivers for using these different types of guanxi networks among Taiwanese SMEs.

2. Literature Review

Coleman (1990) defines social capital as any aspect of a social structure that creates value and facilitates the actions of persons within that social structure. We posit that social capital theory is particularly well-suited to explaining foreign SMEs' entry into China, especially with regard to the concepts introduced in Lin's (1999) social resource theory, according to which advantages stem from the nature of the resources embedded within a network. The advantages conferred by an actor's position in a social network can be "converted" into economic or other advantages (Bourdieu, 1985). In addition, actors may compensate for the lack of other resources (e.g., financial, human) with their superior "connections." Social capital also may improve the efficiency of economic capital because it reduces transaction costs. In this sense, social capital helps explain the differential outcomes of rival firms, because some firms' actions will be greatly facilitated by their direct and indirect links to other actors in their social networks.

In the Chinese social structure, guanxi entails webs of social ties that feature sentiment-based obligations among persons, as well as a business exchange network for gaining resources, information, and opportunities. Tsang (1999) uses a resource-based analysis of guanxi to argue that the guanxi possessed by members of an organization become part of that organization's human capital. In China's relatively primitive legal infrastructure, guanxi also becomes a popular way to solicit favors from the authorities who have control over scarce resources (Tsang, 1999). The mere existence of a business relationship does not ensure the accumulation of social capital, but a deeper sense of the relationship gains affirmation through guanxi (Bell, 2000). That is, to explain why foreign SMEs continue to thrive in China, we should recognize their accumulation of social capital through guanxi, which grants them legitimacy and thus better survival chances.

However, sociologists and anthropologists define the nature of guanxi differently, depending on their emphasis on the network or networking. In the first case, some authors view guanxi as interpersonal connections (Leung et al., 1996; Xin & Pearce, 1996); tight, close-knit networks (Yeung & Tung, 1996); or strategically constructed networks of personal relationships (Yan, 1996). Departing from this network view though, others stress the role of guanxi: People exchange favors through guanxi based on trust, affect, or the friendship among persons (Jacobs, 1979; King, 1991; Pye 1982). This view evolves toward the idea of guanxi as social networking (Hwang, 1987; King, 1991; Yang, 1994), such that people interact within the network, engaging in an infinitely repeated game with a set of people they already know (Davies, Leung, Luk, & Wong, 1995) to obtain access to a gateway or passage (Yeung & Tung, 1996). The latter view highlights the use of guanxi; following this reasoning, we define guanxi as the extent to which a foreign investor employs guanxi networks to conduct business in China.

We also distinguish among three major types of guanxi in China: with Chinese business communities, local governments, or the central government. Traditionally, entry mode research suggests guanxi with business communities as a means for foreign companies to access country-specific experience, distribution channels, and so forth (Punnett & Yu, 1990; Tao, 1988). However, Luo (2001) argues that guanxi with a local government and/or China's central government also may be necessary, because a foreign investor and government entities can offer each other complementary resources: The government provides exclusive marketing rights and conflict resolution mechanisms with local suppliers and distributors; the foreign investor encourages economic growth in a region and provides tax revenues. Expanding Luo's work, we propose that guanxi with central versus local governments requires different approaches. The central government in China sets the national economic plan, but local governments decide how to implement that plan (Wiersema, 2006).

Many existing studies evaluate the benefits and pitfalls of guanxi for doing business in China (Abramson & Ai, 1999;

Ambler, Styles, & Wang, 1999; Davies et al, 1995; Leung et al., 1996; Neil & Ai, 1999). Specifically, existing studies show that guanxi improves foreign investors' financial outcomes (Luo & Chen, 1996), marketing effectiveness (Davies et al., 1995; Park & Luo, 2001), competitive advantages (Tsang, 1998; Yeung & Tung, 1996), and macro-organizational performance (Peng & Luo, 2000). Therefore, we posit that firms with limited resources should lean toward using their social networks, like guanxi, in China to identify market opportunities and/or obtain marketing support. Considering the lack of resources that generally mark foreign SMEs, such as gaps in management skills or distribution networks, entering China still poses substantial market and political hazards for them. In turn, resources embedded in guanxi may provide an important catalyst for foreign SMEs' success in the Chinese market. In summary, we theorize and test both firm characteristics (i.e., resources, skills, and entry mode) and market conditions (i.e., stability and competition) as potential drivers of guanxi with different networks (i.e., business communities, local government, and the central government).

3. Research Hypotheses

3.1. Resource Factors

Superior skills and resources together represent a firm's capability to compete better than its competitors (Day & Wensley, 1988). Because no organization can be completely self-sufficient, it must acquire deficient resources and information, which creates dependencies among organizations that function within a social network. Foreign investors in China require guanxi to compensate for their deficient capabilities and generate sufficient economic rents to cover the higher cost of servicing the Chinese market. Foreign investors also may offset their lack of capabilities, such as tangible resources, managerial skills, or technical skills, with the help of guanxi. First, with regard to firm resources, the cost of acquiring reliable information about foreign markets is significant (Davidson, 1980), particularly for SMEs (Dymsza, 1988). To compensate for their lack of information, SMEs may be more likely to cooperate with other firms in international markets (Shan & Hamilton, 1991). Furthermore, Gomes-Casseres (1989) reveals that relatively smaller firms tend to use network linkages with other firms to gain economies of scale. In this context, as the number of ties held by executives of a SME increases, the chances of survival should increase as well (Aldrich & Fiol, 1994; Singh, Tucker, & House, 1986). Thus, we propose:

H$_1$: Firm resources exhibit an inverse relationship with the use of guanxi networks in Chinese business communities.

Because foreign SMEs usually have insufficient internal resources to gain bargaining power over government entities, they are subject to frequent government intervention and hindrance (Perkins, 1994). Smaller foreign firms are less visible and receive less attention from political institutions than do large foreign firms; therefore, they tend to draw on network relationships to solve practical difficulties during the investment process. To overcome such bureaucratic red tape, foreign investors require guanxi with government officials. Because foreign SMEs in particular have limited resources, they cannot serve the national market nor rely on guanxi with the central government. In addition, Chinese local governments have the power to issue licenses and enforce business contracts in local markets, which is critical to foreign SMEs for running their day-to-day operations in local markets (Anonymous, 2004). It is thus reasonable to posit that firms' resource constraints encourage guanxi with local governments:

H$_2$: Firm resources exhibit an inverse relationship with the use of guanxi networks with local governments in China.

Foreign SMEs also tend to have executives with fewer ties to others, due to the liability of foreignness (Aldrich & Auster, 1986). Lack of ties is especially problematic in China, where the rule of law sometimes does not exist, and government control can be unreliable (Xin & Pearce, 1996). Luo (2001) proposes that relationships with government officials grant foreign investors a sense of trustworthiness as a local entity. Therefore, foreign SMEs typically need to establish guanxi networks rapidly to gain legitimacy as "Chinese" firms (Peng, 1997; Xin & Pearce, 1996; Yeung & Tung, 1996).

According to Kumar and Worm (2004), local governments in China decide how a law devised by the central government should be implemented in their provinces. Thus, the central and local governments of China do not always speak and act as one (Batson, 2005). In such circumstances, foreign SMEs must maintain guanxi with government officials to ensure interpretations of rules and regulations, by different agencies at varying levels, favorable to their interests.

Furthermore, the Chinese central government prefers foreign investors with abundant managerial skills, from which Chinese indigenous firms can learn. Thus, foreign SMEs that lack transferable skills should pursue strong ties with central government officials to bypass its strict approval procedures. In addition, foreign SMEs that lack effective managerial skills may be unable to deal with potential conflicts with suppliers and distributors, and local officials can offer a conflict resolution mechanism, especially when the rule of law fails. Both Nee (1992) and Walder (1995) propose that a network strategy linking firms and local officials may lead to better firm performance. In summary, guanxi with government officials—both at the central and local levels—appears essential for overcoming a lack of managerial skills. Thus,

H₃: Firm managerial skills exhibit an inverse relationship with the use of guanxi network with Chinese local governments.

H₄: Firm managerial skills exhibit an inverse relationship with the use of guanxi network with Chinese central government.

A lack of technical skills also may be problematic for foreign SMEs, especially during the initial stages of their direct investment in China. Traditionally, Chinese government officials have encouraged foreign investors to form joint ventures with Chinese firms to ensure rapid knowledge transfer, whereas foreign SMEs generally prefer to invest in an effort to exploit low production costs. Therefore, foreign SMEs that seek cost advantages but have little technology to transfer to Chinese firms should pursue guanxi with the central government, which approves FDI; local governments instead help facilitate the day-to-day operations of special economic zones such as Guangdong (Walder, 1995). Therefore, we hypothesize:

H₅: Firm technical skills exhibit an inverse relationship with the use of guanxi networks with the Chinese central government.

Finally, we suspect that a foreign investor's entry mode influences the guanxi it pursues in China. If a foreign SME enters the Chinese market as a wholly owned subsidiary, the initial investment approval from the central government represents a significant hurdle to overcome. However, if the SME forms a joint venture with an indigenous firm with strong ties to Chinese central government officials, it likely needs to cultivate stronger networking with Chinese business communities to identify trustworthy partners. We propose that

H₆: Market entry through a joint venture drives the use of guanxi networks with the Chinese business community.

H₇: Market entry through a wholly owned subsidiary drives the use of guanxi networks with the Chinese central government.

3.2. Market Factors:

While pursuing the promising market potential of China, foreign SMEs remain wary of the potential risks, which include but are not limited to investment risk (i.e., political stability) and market risk (i.e., unfair competition). We propose that foreign SMEs expect to alleviate such risks through the help of guanxi. First, the Chinese government's policies on FDI approval and profit remittance to foreign countries, as well as the general political instability, create investment risk (Kobrin, 1983; Root, 1987). In transition economies such as China, where market-supporting institutions such as transparent laws are lacking, guanxi cultivated by managers may be more important for facilitating transactions (i.e., government intervention), such that it significantly influences firm performance (Peng & Heath, 1996; Redding, 1996). In addition, institutional uncertainties and ambiguous property rights in China necessitate guanxi with various government agencies (Park & Luo, 2001; Xin & Pearce, 1996). Accordingly, some authors (e.g., Davies et al., 1995; Leung et al., 1996; Wu, 1994) find that guanxi has a positive impact by reducing transaction costs associated with market instability. China continues to work to establish its rule of law, so law enforcement often remains subject to government officials' personal interpretations. Guanxi may provide valuable intelligence about changes in government policies and their execution, so SMEs need to undertake guanxi with government officials, at both central and local levels.

H₈: Firm's perception of investment risk drives the use of guanxi network with Chinese local governments.

H₉: Firm's perception of investment risk drives the use of guanxi network with Chinese central government.

Second, China's open door policy attempts to encourage market competition between indigenous firms and foreign investors, yet competition in local markets remains generally unfair, in that local government officials tend to support local interest groups (Cohen, 2006). In particular, local officials limit fair market competition when it threatens their particular economic interests (Batson, 2005), which means Chinese businesses can routinely rely on local officials to provide a broad range of services, including access to credit from state-owned banks and bypasses of the central government's approval procedures (Anonymous, 2004). Moreover, local governments have access to various tools they can use to thwart unwanted competitors in the market, such as taxation, permits, government contracts, informal pressure, and so on (Batson, 2005). Recently, the section forbidding the abuse of government power to restrict competition disappeared from China's new antimonopoly law during a review by the State Council, the government's executive arm, before being sent to the National People's Congress for final approval (Cohen, 2006); that is, the central government's attempt to ensure local governments do not favor local firms at the expense of foreign competitors failed. Consequently, forming a guanxi network with local officials is not just an option but rather a necessity as a defensive posture when the intensity of market competition is low due to unfair competition. Accordingly,

H₁₀: Firm perception of competition intensity inversely drives the use of guanxi networks with Chinese local government.

4. Methodology

4.1. Sample

Taiwanese SMEs listed in the 2002 *Directory of Taiwanese Manufacturing Firms Investing in China*, published by the Ministry of Economic Affairs of Taiwan, constitute the potential sample. To minimize bias due to geographic locations (i.e., Guangdong, Fujian, Kiangsu, and Shanghai), we drew an average of 60% of the firms (58–62%) from each area, for a total random sample size of 1,870. After two mailing waves in 10 weeks, we received 276 usable questionnaires, for a 14.77% effective response rate. We tested these 276 usable responses for nonresponse bias by comparing early and late respondents; we find no evidence of nonresponse bias (Armstrong & Overton, 1977).

4.2. Measurement Scales

Most of the questionnaire measurement items come from existing literature, anchored on five-point Likert-type scales, with the exception of entry mode, a dummy variable (1 = joint venture, 0 = wholly owned subsidiary). We provide a brief description of the measurement items in Table 1; the correlations among the variables appear in Table 2. As dependent variables, we consider the need to use the three types of guanxi networks (G_B = business communities, G_{LG} = local governments, G_{CG} = central government).

Regarding the internal drivers of guanxi use, we measure firm resources (RESOURCE) as a composite of total assets (Kogut & Singh, 1988; Yu & Ito, 1988) and number of employees (Erramilli & Rao, 1993). The firm's managerial skills (MGMT) refer to managers' skills for handling international expansion and their international experience (Davidson, 1980). Technological skills (TECH) reflect the firm's R&D expenditures divided by sales (Yu & Ito, 1988) and its technological abilities compared with those of its direct competitors. Entry mode (ENTRY) equals 1 if the firm uses a joint venture and 0 if a wholly owned subsidiary. For the external drivers, we measure perceived investment risk (RISK) in terms of political instability, profit repatriation risk, and policy change risk (Agarwal & Ramaswami, 1992; Wheeler & Mody, 1992). Finally, the extent of competition (COMP) equals the intensity of rivalry in the industry and between competitors (Ambler et al., 1999). Both factor analysis (Hair, Anderson, & Tatham, 1998) and the internal reliability statistics—including bivariate correlations and Cronbach's alphas (Nunnally & Bernstein, 1994)—indicate a satisfactory level of content validity and reliability (see Tables 3 and 4, respectively).

4.3. Hypotheses Test

We use the average scores of the independent and dependent variables for the regression analysis:

$G_i = \beta_0 + \beta_1 \, \text{RESOURCE} + \beta_2 \, \text{MGMT} + \beta_3 \, \text{TECH} + \beta_4 \, \text{ENTRY} + \beta_5 \, \text{RISK} + \beta_6 \, \text{COMP} + \varepsilon,$

where G_i refers to G_B (guanxi with business community; Model 1), G_{LG} (guanxi with local government officials; Model 2), or G_{CG} (guanxi with central government officials; Model 3), and ε represents random error.

All the regression models (Models 1, 2, and 3) reach significant F values (6.39, 6.39, and 5.53, respectively) and the adjusted R-squares are .11, .11, and .09, respectively (Table 5). According to Model 1, a firm's lack of resource drives its guanxi with Chinese business communities (t = -2.96), in support of H_1. Taiwanese SMEs that formed joint ventures also exhibit strong intents to exploit their business communities. That is, joint venture as the market entry mode relates positively to guanxi with business communities (t = 2.43), in support of H_6.

From Model 2, we find that firm resources, management skills, and market competition are inversely related (t = -2.07, -2.67, and -2.27, respectively), whereas investment risk is positively related (t = 2.39), to Taiwanese SMEs' willingness to employ guanxi with local government officials. Therefore, we find support for H_2, H_3, H_8, and H_{10}. Finally, Model 3 indicates that investment risk and lack of management skills drive guanxi with the central government (t = 2.51 and -2.47, respectively), in support of H_4, and H_9. However, the firm's technological skills do not indicate a significant relationship with guanxi with the central government, and therefore, H_5 does not receive support. Also, we must reject H_7 because there is no significant relationship between a firm's entry mode and guanxi with the central government.

5. Discussion

Overall, our findings match those of previous studies. Taiwanese SMEs thrive in China by creating social capital, which they do by effectively using various institutional and social networks (i.e., guanxi) to induce entrepreneurial opportunities, maintain legitimacy, and ensure their survival. Managers who network with managers at other firms and with government officials help improve firm performance in the Chinese market (Peng & Luo 2000). The results also indicate that resource gaps and market competitiveness have different effects for the different types of ties. As we expected, a lack of firm resources and market competition prompts Taiwanese firms to turn to guanxi with local rather than the central government officials, because the former have the authority to intervene in their day-to-day operations by allocating government-owned resources, enforcing rules and regulations regarding market transactions, and restricting market competition in local markets. The lack of fair competition in the Chinese market also requires Taiwanese firms to utilize guanxi with local government officials; this state implies that local government officials prefer local businesses, which makes these local firms stronger competitors in the market and accordingly diminishes

the probability of survival by a new foreign entrant (Caves, 1974). Our findings also reinforce the recognition that the Chinese market remains in transition, from a planned to a free economy in which competitors are treated equally.

A lack of international management skills and a higher degree of investment risk motivate Taiwanese firms to pursue guanxi with government officials at both central and local levels. The Chinese government system is organized such that local governments can defy the rules and policies set by the central government. Therefore, strong ties with the central government do not automatically transfer into strong ties with local government officials or vice versa.

With regard to guanxi with central government officials, a lack of technological skills does not seem to motivate Taiwanese SMEs to engage in guanxi, perhaps because firms have trouble assessing their technological skills objectively, so a firm's self assessment of its skill level may not be critical for obtaining central government approval for FDI. Instead, this approval process may depend on the presentation of the firm's technological skill in the application. Furthermore, a wholly owned subsidiary as the market entry mode does not seem to influence Taiwanese SMEs' motivation toward guanxi with the central government. We posit that a potential cause may be China's recent membership in the World Trade Organization, which may have persuaded the central government to abandon its preference for joint ventures. In contrast with our prediction, perceived investment risk drives Taiwanese SMEs to engage in guanxi with business communities (t = .135). We suspect that because investment risk is such a critical threat for FDI, foreign SMEs try to avoid it completely by forming guanxi networks with not only government officials but also business communities.

6. Study Implications

The speed and prevalence of globalization these days makes the need to understand and employ complex guanxi networks especially relevant for both managers and academics. Our study results confirm that from a practical standpoint, a foreign SME in China likely should invest in the development of social ties to take advantage of the social resources embedded within guanxi networks. In addition, in many cases, though not always, it makes sense to invest selectively in strengthening the ties with higher levels of government. This research thus describes the significance of guanxi in China and explains the need for different types of guanxi with different stakeholders, depending on the foreign SME's characteristics and the market. In addition, our use of a unique sample of Taiwanese SMEs helps expand the scope of existing guanxi literature. Overall, our study results echo the findings of existing literature (e.g., Peng, 1997; Xin & Pearce 1996; Yeung & Tung 1996), namely, that firms with weak organizational capabilities or ambiguous environment tend to use guanxi networks.

Foreign SMEs often find the various interpretations of policies and regulations by different levels of Chinese government confusing, because they lack a clear understanding of the government structure, administration mechanisms, and political infighting among different levels of government. This study reveals, in the interest of foreign SME managers, that working with higher-level government officials (i.e., central government) cannot always solve problems. They may have the authority to approve projects and exercise controls over local governments in China, but working with lower-level, local government officials provides unique benefits, including favorable resource allocations and economic policy enforcement.

Finally, our use of a unique sample (i.e., Taiwanese SMEs) produces interesting findings but also limits their generalization. It would be beneficial for further research to compare and contrast the differences between large multinational investors and SMEs in different contexts. We also rely on practical evidence to support some of our arguments, because insufficient theoretical antecedent justifications exist. Thus, additional studies need to offer strong, theory-laden justifications for our findings. The two hypotheses that do not receive support from our findings (technological skills and market entry mode) also should prompt investigations designed to explain these apparent research gaps.

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Table 1. *Variables, Measurements, and Sources*

Guanxi Factors		
Business community	The need for guanxi with business community	Luo & Chen (1997), Park & Luo (2001)
	The need for guanxi with local government	
Local government		
Central government	The need for guanxi with central government authorities	
Firm-Specific Factors		
RESOURCE	1) Total assets	Erramilli & Rao (1993), Kogut & Singh (1988),
	2) Number of employees	Yu & Ito (1988)
MGMT	1) Perceived managerial capabilities to handle international expansion compared with direct competitors	Davidson (1980), Peng & Luo (2000)
	2) Executive managerial experience	
TECH	1) R&D expenditure over sales	Peng & Luo (2000), Yu & Ito (1988)
	2) Firm's technological skills and abilities compare to direct competitors	
ENTRY	1 if the mode of entry is a joint venture; 0 if a wholly owned subsidiary.	
Host Country Factors		
RISK	1) Political risk	Agarwal & Ramaswami (1992), Wheeler & Mody
	2) Risks of converting and repatriating income	(1992)
	3) Risks of change in Chinese government policies toward foreign investors	
COMP	1) Extent of price competition in the industry	Ambler Styles, & Wang (1999)
	2) Intensity of rivalry between competitors in a firm's industry in Taiwan	
	3) Intensity of rivalry between domestic competitors in the Chinese market	

Notes: Items use 1−5 scales, unless otherwise noted.

Table 2. *Correlation Matrix*{AU: need to mention explicitly in the text; where should this mention go?

	Bus. Ties	Local Govt. Ties	Central Govt. Ties	TA	Emp.	RND Exp.	Tech. Skills	Mgt. Skills	Mgt. Exper.	Pol. Risk	Repat. Risk	Policy Risk	Price Comp.	Taiwan Comp.	China Comp.	Entry
Bus. Ties	1	.500**	.103	-.205**	-.245**	-.140*	-.161**	-.117	-.111	.176**	.167**	.162**	-.132*	-.145*	-.048	.186**
Local Govt. Ties	.500**	1	.201**	-.171**	-.176**	-.122*	-.144*	-.157**	-.202**	.153*	.159**	.219**	-.163**	-.153*	-.192**	.005
Central Govt. Ties	.103	.201**	1	-.184**	-.250**	.018	.002	-.171**	-.128*	.185**	.068	.198**	.036	.101	-.015	.098
TA	-.205**	-.171**	-.184**	1	.689**	.078	.081	.059	.180**	-.191**	-.049	-.242**	-.010	.098	.100	-.153*
Emp.	-.245**	-.176**	-.250**	.689**	1	.140*	.099	.014	.186**	-.169**	-.028	-.213**	-.005	.153*	.128*	-.101
RND Exp.	-.140*	-.122*	.018	.078	.140*	1	.558**	.029	.190**	-.125*	-.133*	-.076	.129*	.314**	.182**	.035
Tech. Skills	-.161**	-.144*	.002	.081	.099	.558**	1	.127*	.208**	-.185**	-.192**	-.163**	.138*	.247**	.189**	-.066
Mgt. Skills	-.117	-.157**	-.171**	.059	.014	.029	.127*	1	.305**	-.057	-.103	-.081	.067	.056	.018	-.080
Mgt. Exper.	-.111	-.202**	-.128*	.180**	.186**	.190**	.208**	.305**	1	-.133*	-.131*	-.084	.123*	.141*	.152*	-.078
Pol. Risk	.176**	.153*	.185**	-.191**	-.169**	-.125*	-.185**	-.057	-.133*	1	.354**	.567**	-.135*	-.074	-.089	.071
Repat. Risk	.167**	.159**	.068	-.049	-.028	-.133*	-.192**	-.103	-.131*	.354**	1	.475**	-.179**	-.085	-.067	.096
Policy Risk	.162**	.219**	.198**	-.242**	-.213**	-.076	-.163**	-.081	-.084	.567**	.475**	1	-.146*	-.143*	-.188**	.082
Price comp.	-.132*	-.163**	.036	-.010	-.005	.129*	.138*	.067	.123*	-.135*	-.179**	-.146*	1	.524**	.424**	-.017
Taiwan Comp.	-.145*	-.153*	.101	.098	.153*	.314**	.247**	.056	.141*	-.074	-.085	-.143*	.524**	1	.581**	-.029
China Comp.	-.048	-.192**	-.015	.100	.128*	.182**	.189**	.018	.152*	-.089	-.067	-.188**	.424**	.581**	1	-.024
Entry	.186**	.005	.098	-.153*	-.101	.035	-.066	-.080	-.078	.071	.096	.082	-.017	-.029	-.024	1

** Correlation is significant at .01 level (two-tailed).
* Correlation is significant at the .05 level (two-tailed).

Table 3. *Rotated Component Matrix*

	Component				
	1	2	3	4	5
Total assets	.021	.102	.895	.009	.086
Number of employees	.060	.068	.904	.078	.035
RND expenditures/sales	.144	.046	.068	.878	.015
Technology skills	.104	.153	.016	.838	.134
Management skills	.004	.065	-.050	-.029	.857
Managerial experience	.109	.060	.190	.191	.725
Political risk	.022	.780	.154	.097	.013
Repatriation risk	.053	.756	-.129	.121	.116
Government policy change risk	.135	.843	.181	-.005	.022
Price competition intensity	.787	.137	-.114	-.006	.090
Taiwan company competition	.833	.009	.100	.226	.028
China company competition	.806	.055	.115	.086	.010

Notes: Extraction by principal component analysis. Rotation by Varimax with Kaiser Normalization. Rotation converged in 5 iterations. Extraction sums of squared loadings equal 72.27%.

Table 4. Internal Reliability Test

	Standard Alpha	Item-Total Correlation	Bivariate Correlation (2-item scale)	Significance
Firm Resource				
• Taiwan assets	N/A	N/A	.689	.01 level (two-tailed)
• Taiwan employees		N/A		
International Management Skills				
• Management skills	N/A	N/A	.305	.01 level (two-tailed)
• Managerial experience				
Technological Skills				
• RND expenditure	N/A	N/A	.558	.01 level (two-tailed)
• Technology skills				
Investment Risks				
• Political risk		.534	N/A	
• Repatriating risk	.723	.471		
• Risk of government policy changes		.629		
Market Competition				
• Price competition		.524	N/A	
• Overall rivalry in the industry		.656		
• Rivalry between Chinese domestic competitors	.757	.566		

Table 5. Regression Results

	(Mode 1) Business Community	(Model 2) Local Government	(Model 3) Central Government	VIF Collinearity Statistics
Constant	3.535***	4.424***	2.187***	
	8.273	*8.596*	*5.679*	
RESOURCES	-.117***	-.098**	-.116***	1.139
	-2.959	*-2.068*	*-3.242*	
MGMT	-.044	-.170***	-.118**	1.111
	-.840	*-2.673*	*-2.474*	
TECH	-.107	-.049	.070	1.088
	-1.615	*-.611*	*1.179*	
RISK	.135**	.189**	.149**	1.110
	2.051	*2.392*	*2.509*	
COMPETITION	-.061	-.208**	.108	1.080
	-.801	*-2.269*	*1.569*	
ENTRY	.258**	-.104	.073	1.031
	2.433	*-.813*	*.764*	
R^2	.125	.125	.110	
Adjusted R^2	.105	.105	.090	
F-value	6.393	6.385	5.533	
Durbin-Watson (Autocorrelation Statistics)	2.113	1.959	2.383	
N	276	276	276	

Note: t-values are below each coefficient in small italics.

*Significant at 0%.

**Significant at 5%.

***Significant at 1%.

Causes and Control of Financial Risk in Mergers & Acquisitions

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Abstract

The mergers & acquisitions (M&A) of enterprises are the management activities with high risks which exist through the whole M&A activity, and the financial risk is the important influencing factor to impact the M&A. By analyzing of value evaluation, financing activity and financial risk in M&A, it is obvious that M&A is a property rights trading with high risk (and the financial risk is the important factor with the highest risk). Therefore, the before-event control and the mid-event control should be applied to prevent the financial risk, and the after-event control should be used to reduce the financial risk, and accordingly enhance the survival rate of M&A.

Keywords: Mergers & Acquisitions (M&A), Financial motivations, Financial risk, Causes, Control

1. Definition and causes analysis of financial risk in M&A

The financial risk in M&A means the possibility that the financial crisis happens in certain term because of the financing for M&A or the debts occurring in M&A. An integrated M&A activity includes the selection of objective enterprise, the value evaluation of objective enterprise, the feasibility analysis of M&A, the raising of M&A capitals, the confirmation of pricing mode, and the integration after M&A. These parts all may produce risk, and the financial risk in M&A mainly comes from following aspects.

1.1 Financial risk when the party of M&A evaluates the value of objective enterprise

The base of M&A is the value evaluation of the objective enterprise. At present, the value evaluation of the objective enterprise in China is the evaluation according the basic principle and method procedures of the asset evaluation, and its rationality is impacted by various factors.

1.1.1 Imperfect evaluation index system

In M&A, a series of effective evaluation index system are deficient in China, and most relative regulations are principled without operation values. The human subjectivity in M&A could largely influence the M&A, so the M&A can not be implemented according to the value rule of the market, and the problem of "erosion of state assets" is hard to avoid, or to avoid the erosion of state assets, the value of the objective enterprise is evaluated too highly to implement the M&A.

1.1.2 Lacking in the agency organization serving for M&A

Because the independent agency organization which can provide exact information and consultation service for M&A, the information costs of both parties of M&A can not be reduced, and the behavior of M&A can not be guided and supervised, and the transaction cost and risk will be increased certainly.

1.1.3 Too much governmental controls in M&A

Some local governments force "matching" two enterprises, and even merged the disadvantageous enterprise into the advantageous enterprise by unreasonable trading price and finally dragged the feet of the advantageous enterprise. The party of M&A was forced to accept not only the losses and debts of the disadvantageous enterprise, but also the employees in the disadvantageous enterprise. The interference of the government not only could make the trading price to deviate the value seriously, but brought large management burden to the party of M&A.

1.2 Financial risk brought by financing activity of the party of M&A

1.2.1 Influence of different financing modes

The financing of M&A generally includes the interior financing and the exterior financing. The interior financing is the own capitals of the enterprise, and these capitals can be freely dominated by the enterprise, and the financing pressure is small, and nothing must be repaid, so the zero financing cost can effectively reduce the financial risk. But new financial risk will be produced when only depending on the interior financing. On the one hand, because the general scale of Chinese enterprises is small and the profiting level is low, it is hard to quickly raise needed capitals only depending on their own accumulations. On the other hand, if the interior financing is largely adopted to occupy the precious flow

capitals of the enterprise, the quick reaction and adaptability of the enterprise for the change of exterior environment will be reduced, and once the own capitals of the enterprise are used for M&A, and refinancing will be difficult, which will endanger the normal management of the enterprise and increase the financial risk. The exterior financing means raising capitals by exterior channels, and it includes the equity financing and the debt financing. The equity financing has its limitations. First, China requires the stock financing rigidly, and long financing time makes against the chance of M&A. Second, the stock financing will inevitably change the equity structure of the enterprise, and dilute the control right of big shareholders to the enterprise, even the big shareholders of M&A may lose the equity of the enterprise. Comparing with the equity financing, the cost of the debt financing is lower, but in the present China, some enterprises have higher debt rate and limited loaning ability, and even the debt financing is successful, the enterprise after M&A will be on a sticky wicket in the competition because of too much debts and deteriorated capital structure. And when the debt is at term, the repayment of capitals and interests will increase the financial burden of the enterprise, and improper arrangement will make the enterprise to get into the financial crisis.

1.2.2 Whether the financial mode accords with the motivations of M&A

The M&A motivations here only mean that the enterprise of M&A wants to hold the objective enterprise temporarily or in a long term. If the target of M&A is temporary to hold the objective enterprise, and resell it after proper alteration to earn the price difference, the quite large short-term capitals should be invested. Here, the short-term loan mode with lower capital cost can be selected, but the repayment burden of cost and interest is heavy, and the enterprise is easy to get into the financial crisis because of improper arrangement. But if the buyer wants to hold the objective company in a long term, the concrete financing mode of M&A capitals should be confirmed according to the capital structure and the requirement of sustainable management of the objective enterprise. Therefore, the M&A enterprise should maintain normal operation capitals, match the investment return terms with the loan sorts, and reasonably arrange the capital structure aiming at the debt repayment terms of the objective enterprise.

1.3 Financial risk in M&A

Though M&A is a short cut for the enterprise to enlarge the scale, enter into other industries or enlarge the market share, but in M&A, because the management concepts, the organization structure, the management system and the financial operation modes of the M&A enterprise and the objective enterprise are different, the friction will occur inevitably, and if it had not been treated properly, not only the profit of M&A will be neutralized, but also the competitive advantage of the original enterprise will be corroded. Especially when the buyer lacks in experiences and the information of seller and buyer are asymmetric, or the seller intentionally or unconsciously hides some very important news for the buyer which has not sufficient apperceiving ability, the buy may taste the "bitter result" in the integration after M&A.

2. Control of financial risk in M&A

The risk control means those endeavors which can minimize the degree and frequency of the risk, and it generally includes the preventing mode and the lightening mode. The intention of t preventing is to reduce the possibility that risk happens, and the intention of lightening is to lighten the degree of risk loss, and the risk preventing includes the before-event control the mid-event control, and the risk lightening is the after-event control.

2.1 Before-event control of financial risk in M&A: carefully select the objective enterprise of M&A

2.1.1 Confirming the strength and position of the party of M&A

Except for emphasizing the value evaluation of the objective enterprise, the enterprise should objectively analyze and evaluate its own strength, especially the capital strength, and reduce the unpractical and blind optimism and aggrandize its own strength. In addition, it should realize that M&A is not only a kind of strategic behavior, but also a kind of economic behavior, and the enterprise should follow the principle of marketilization, not annex some enterprises with heavy debt burdens, supers and historical burdens to obtain the political capitals for some leaders in China, which will make the enterprise after M&A to get in embarrassed situation. Leaders should make decisions rationally from the position to promote the development of the enterprise.

2.1.2 Reasonably evaluating the value of objective enterprise

The asymmetric information of the two parties of M&A is the essential cause to produce the risk of value evaluation of the objective enterprise, so the enterprise of M&A should try to avoid hostile M&A, and carefully check and evaluate the objective company before M&A. The buyer can retain the investment bank to plan the development strategy of the enterprise, capture the objective enterprise, and comprehensively analyze the industrial environment, the financial state and the management ability of the objective enterprise, and reasonably predict the future profit ability of the objective enterprise. The value evaluation of the objective enterprise based on that will be close to the real value of the objective enterprise and reduce the evaluation risk. In addition, the different value evaluation methods can be adopted to evaluate the same one objective enterprise, and different prices may be obtained. The buyer should decide the proper evaluation method according to the motivation of M&A, such as whether the objective company continually exists after M&A, and

whether the information of materials is sufficient.

2.2 Mid-event control of financial risk in M&A

2.2.1 Adopting various financing measures

When the enterprise makes the financing decisions, it should actively develop different financing channels such as the equity financing, the debt financing, the lever purchase financing, and the buyer financing to implement M&A and push the recombination and integration once the value of the objective enterprise is confirmed, and control the capitals structure in a relatively reasonable range. Under this premise, the capital composing and the term structure of the debt can be analyzed, and the future cash inflow and the debt repayment of the enterprise can be composed and matched according to the term structure, and the flow weak point of future capitals of the enterprise can be found out, and then the terms and the sum structure of long-term debt and short-term debt are adjusted to minimize the capital cost.

2.2.2 Adopting the mode of mixed payment

The enterprise should be established in long-term target, and adopt different combinations such as cash, debt and equity for the payment mode, combining with its own financial status. If the buyer predicts that the M&A could obtain large profit space by effective integration, and it can adopt the mixed payment mode giving priority to debt payment, so the tax-offset could reduce the capital cost. And if the buyer has sufficient capitals and stable cash flows, and the cost of stock issuance is large or the stock value of the enterprise is undervalued in the market, the mixed payment mode giving priority to own capitals can be selected. If the buyer's financial state is not good, and the asset debt is high, and the asset flow of enterprise is bad, the share exchange mode can be adopted to optimize the capital structure. Therefore, the enterprises in M&A should deeply develop the mixed mergers, and study to adopt multiple securities such as company bond, convertible bond and warrant for combined payment.

2.2.3 Adopting flexible mode of M&A to reduce the cash payout

The main modes of M&A include following sorts.

(1) M&A of mortgage. The objective enterprise will be the mortgage to apply quite large loans to the bank for M&A.

(2) M&A of debt-undertaking and stock-control. When the debts of the objective enterprise mainly come from bank loans and they are insolvent, the party of M&A can consult with the bank to independently undertake the repayment obligation, and the bank should allow the party of M&A to transfer the debt to the capital stock of the objective enterprise as the capital, and accordingly achieve the holding state.

(3) M&A of stock-melon-cutting. When the asset of the objective enterprise exceeds its debts, the party of M&A needs not buy the surplus asset of the objective enterprise, but should consult with the owner or the asset management institution of the objective enterprise, and add the surplus asset of the objective enterprise into the party of M&A by the stock form, and share corresponding profit according to the share.

2.3 After-event control of financial risk in M&A

2.3.1 Establishing the financial alarm management system

In the integration term of M&A enterprises, because the frequency of financial fluctuation and financial risk happen is higher, so the financial crisis of the enterprises of M&A easily occurs. Therefore, for the survival and development of the enterprise of M&A, the enterprise of M&A should properly establish scientific financial alarm management system to take precautions. The financial alarm management system of the enterprise of M&A is to take the financial risk and financial crisis induced by the financial management mistakes and the financial process fluctuation in the integrated term as the research object, and supervise them in order to ensure the good development of the management state of the enterprise, and identify, evaluate, predict, pre-control and continually remedy bad financial development tendency.

2.3.2 Enterprise division: removing and separation

The removing means that the enterprise lends some existing sub-company, department, product production line and fixed asset to other companies, and return cash or portfolio. The separation means the company distributes the share of the sub-company owned by the parent-company to shareholders in the parent-company according to certain proportions, and accordingly separates the management of the sub-company from the parent-company in law and organization. In the separation process, the cash transaction will not happen, and the transfers of equity and control right to the third party don't exist, and the present shareholders still keep their rights to the parent-company and the separated sub-company. The unadvisable M&A will produce disastrous consequent to the enterprise, and the removing and separation can help the enterprise to remedy false annexation and reduce the financial risk of M&A. In the integration process, when the situation is largely different with the anticipation and the financial state is not stable, such as the performance of the objective enterprise is bad, the party of M&A can not burden the interest, and the stock price of the company falls, the enterprise can remove or separate this sub-company.

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Rangoon Enters the Digital Age: Burma's Electronic Transactions Law

As A Sign of Hope for A Troubled Nation

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Abstract

Since it became independent in 1948, Burma has been plagued with a succession of military dictatorships. The present government refuses to recognize the election of Nobel Peace Laureate Aung San Suu Kyi, and keeps her under house arrest. Nevertheless, the legal foundation of Burma continues to develop, serving as a beacon towards a brighter day for the country. One example is the Electronic Transactions Law ("ETL") of 2004, a solid framework upon which E-commerce and E-government can be built in the future. The ETL recognizes the legal validity of electronic records, messages and signatures. The statute contains a third-generation E-signature law; all forms of electronic signatures are recognized, but a preference is given to the heightened security afforded by the digital signature. Commensurate with that preference, the ETL establishes a compulsory system of licensing of Certification Authorities ("CA"), prescribes detailed rules for them to follow, and assigns the Control Board to oversee their activities. The ETL contains a list of computer crimes, some of which are punishable by 15 years' imprisonment. Is the ETL up-to-date according to current trends in international E-commerce law? Not quite. Recommended amendments are to: (1)increase the potential liability of CA's; (2) recognize the legal validity of electronic wills; (3) add consumer protections; (4) claim "long arm" jurisdiction over foreign parties in E-commerce transactions; (5) compress the ETL's bureaucracy through consolidation of the Central Body and the Control Board; (6) provide for reciprocal recognition of foreign CA's and foreign certificates; and (7) establish informal Information Technology tribunals as a court-of-first-resort for E-commerce disputes.

Keywords: Burma, E-Commerce, Electronic, Signature, Transactions, Law

Objectives of the Article

The objectives of this article are to: (1) cover the recent history of Burma (CIA, 2009), its current state of economic development, and the nascent role of E-commerce as a part of that development; (2) explain the role of electronic signatures, public key infrastructure technology, and certification authorities; (3) describe the three generations of electronic signature law; (4) analyze Burma's Electronic Transactions Law ("ETL"); and (5) make recommendations for improvement of the ETL.

Introduction: Burma's Tragic Recent History

Burma was conquered by the British over a period of 62 years (1824-1886) and remained a British colony until achieving its independence in 1948. Since then, Burma has been a troubled nation, ruled by a succession of military strongmen with little concern for human rights and individual liberties. In the late 1980's, a pro-democracy political party—the National League for Democracy ("NLD")—grew in popularity. By the end of the decade, the NLD was on the threshold of power and attainment of democracy in Burma seemed to be a real possibility. The NLD's leader, Aung San Suu Kyi, was elected president of Burma in a landslide victory in 1990, despite the military opposition's interference in the campaign by placing her under house arrest before the election. Notwithstanding the election outcome, the military dictators refused to hand over power to her. Aung San Suu Kyi has courageously continued her efforts against the military *junta*. As a result, she has been kept under house arrest for fourteen of the past twenty years, including the present (CIA, 2009). For her "non-violent struggle for democracy and human rights" in Burma, she was awarded the Nobel Peace Prize in 1991 (Nobel Committee Presentation Speech, 1991; *see also* Nobel Committee's Biography of Aung San Suu Kyi, 1991) and is one of the author's "personal heroes." Her struggle remains difficult; the despotism of Burma's military dictatorship continues to this day (*see*, e.g., Sipress, 2005).

The traditional name of this nation is Burma. Since 1989, the military rulers of the country have touted "Myanmar" as the new name, but this has not been accepted by the United States and a number of other nations because it was never given approval by Burma's legislative body, which has been dissolved by the military dictatorship (CIA, 2009).

Burma's Economy and the Emergence of E-Commerce

Burma's Gross Domestic Product has been increasing during the past several years, mostly due to a rise in exports of oil and natural gas (State Department, 2009). Gross domestic product ("GDP") was recently estimated to be in excess of $55 billion. However, the development of the economy is hamstrung by extensive government controls and its inefficient economic policies. The government has imposed unrealistic official exchange rates that overvalue the nation's currency. Interest rates are distorted, fiscal deficits are the norm, official statistics relating to the GDP are unreliable, and there has been a failure to reconcile national accounts (CIA, 2009).

The plight of the ordinary people of Burma has continued to deteriorate during this decade. The annual per capita income of the population was recently estimated to be $1,200, but much of this income goes to the government and the wealthy; most of the citizens of Burma are forced to get by on an annual income of less than $200. The income of the people of Burma, already a pittance, has been further eroded by a decline in value of the currency; in 2008, the inflation rate was estimated to be 26%.   Most Burmese are poorly educated with only eight or less years of education (CIA, 2009).

Apparently believing that free speech would undermine its control on power, the government strictly curtails access to the internet. Only about 40,000 people in Burma out of a population of 48.8 million use the internet (CIA, 2009; and State Department, 2009); Burma is 169th in the world on this statistic (CIA, 2009). Nevertheless, in order to stimulate the creation of reserves of foreign currency, the government has been encouraging the development to E-commerce sales by domestic firms to foreign parties. (E-commerce sales to domestic parties are limited by the small of people that have access to the web.) Accordingly, E-commerce is beginning to emerge, although there were only 108 internet hosts with websites in 2008 (CIA, 2009) E-government is also beginning to emerge, and the government has created a portal (Burma, Myanmar.com, 2009).

The Electronic Transactions Law ("ETL"), the major focus of this article, was created in 2004 to serve as the foundation for secure E-commerce transactions (Burma, ETL, 2004). Because of the potential ability of the internet, E-commerce and the ETL to improve the GDP of Burma and to open up the country to the world, these developments may be viewed as a sign of hope for a troubled nation.

Three Generations of Electronic Signature Law

Electronic Signatures

Contract law worldwide has traditionally required the parties to affix their signatures to a document (*see*, e.g., U.S. Uniform Commercial Code, 1998). With the onset of the electronic age, the electronic signature made its appearance. It has been defined as "any letters, characters, or symbols manifested by electronic or similar means and executed or adopted by a party with the intent to authenticate a writing," (Smedinghoff, 1999) or as "data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of authentication" (European Union, 1999). An electronic signature may take a number of forms: a digital signature; biometric identifiers such as a voice pattern, facial recognition, a retinal scan, a digitized fingerprint or a digitized handwritten signature; a pin number; or merely a name typed at the end of an e-mail message (Tang, 1999).

Biometric identifiers have at least two drawbacks in comparison with the digital signature: (1) The attachment of a person's biological traits to a document does not ensure that the document has not been altered, i.e., it "does not freeze the contents of the document;" and (2) The recipient of the document must have a database of biological traits of all signatories dealt with in order to verify that a particular person sent the document. The digital signature does not have these two weaknesses and most seem to view the digital signature as preferable to biometric identifiers (Pun, 2002; *but see* Wright, 2001). Many also recommend the use of both methods; this was the course taken by the Hong Kong government in designing its identity card (Chung, 2003).

The digital signature is considered the most secure of all electronic signatures. Many laypersons erroneously assume that the digital signature is merely a digitized version of a handwritten signature. This is not the case, however; the digital signature refers to the entire document (Hong Kong SAR, 2000). It is "the sequence of bits that is created by running an electronic message through a one-way hash function and then encrypting the resulting message digest with the sender's private key" (Smedinghoff, 1999). A digital signature has two major advantages over other forms of electronic signatures: (1) it verifies authenticity that the communication came from a designated sender; and (2) it verifies the integrity of the content of the message, giving the recipient assurance that the message was not altered (Poggi, 2000).

Digital Signature Technology: Public Key Infrastructure

The technology used with digital signatures is known as Public Key Infrastructure, or "PKI" (Fischer, 2001). PKI consists of four steps:

1. The first step in utilizing this technology is to create a public-private key

pair; the private key will be kept in confidence by the sender, but the public key will be available online.

2. The second step is for the sender to digitally "sign" the message by creating

a unique digest of the message and encrypting it. A "hash value" is created

by applying a "hash function"—a standard mathematical function—to the

contents of the electronic document. The hash function is encrypted, or scrambled, by the signatory using his private key. The encrypted hash function is the "digital signature" for the document (Pun, 2002).

3. The third step is to attach the digital signature to the message and to send

both to the recipient.

4. The fourth step is for the recipient to decrypt the digital signature by using

the sender's public key. If decryption is possible, the recipient knows the

message came from the purported sender. Finally, the recipient will create a second message digest of the communication and compare it to the decrypted message digest. If they match, the recipient knows the message has not been altered (Zaremba, 2003).

The Critical Role of the Certification Authority

In order for PKI to realize its potential, it is crucial that the user be able to ensure the authenticity of the public key (available online) used to verify the digital signature. If Smith and Jones are attempting to consummate an online transaction, Smith needs an independent confirmation that Jones' message is actually from Jones before Smith can have faith that Jones' public key actually belongs to Jones. It is possible that an imposter could have sent Jones his public key, contending that it belongs to Smith. Accordingly, a reliable third party—the Certification Authority ("CA")—must be available to register the public keys of the parties and to guarantee the accuracy of the identification of the parties (Hogan, 2000). The most important job of the CA is to issue certificates which confirm: the name and address of the CA that issued the certificate; the name, address and other attributes of the subscriber; the subscriber's public key; and the digital signature of the CA (Froomkin, 1996). Sufficient information will be contained in the certificate to connect a public key to the particular subscriber (Hogan, 2000).

The First Generation of E-Signature Law: Technological Exclusivity

In 1995, the U.S. State of Utah became the first jurisdiction in the world to enact an electronic signature law (Utah, 1995). In the Utah statute, digital signatures using PKI technology were given legal recognition, but other types of electronic signatures were not. Utah was not alone in this attitude; other jurisdictions granting exclusive recognition to the digital signature and PKI include Bangladesh, India (Blythe, 2006), Malaysia, Nepal (Blythe, 2008) and Russia (Fischer, 2001). Forcing users to employ digital signatures gives them more security, but this benefit may be outweighed by the digital signature's disadvantages: more expense, lesser convenience, more complication and less adaptability to technologies used in other nations (Roland, 2001).

The Second Generation of E-Signature Law: Technological Neutrality

Jurisdictions in the Second Generation did the complete reversal of the First Generation and did not include any technological restrictions in their statutes. They did not insist upon the utilization of digital signatures, or any other form of technology, to the exclusion of other types of electronic signatures. These jurisdictions have been called "permissive" because they take a completely open-minded, liberal perspective on E-signatures and do not contend that any one of them is necessarily better than the others. Examples of permissive jurisdictions include the majority of states in the United States (Blythe, 2005 and 2008), the United Kingdom (Blythe, 2005 and 2008) Australia and New Zealand (Fischer, 2001). The disadvantage of the permissive perspective is that it does not take into account that the digital signature offers more security that other types of E-signatures (Blythe, 2009).

The Third Generation of E-Signature Law: A Hybrid

Singapore was in the vanguard of the Third Generation. In 1998, this country adopted a compromise position with respect to the various types of electronic signatures. Singapore's lawmakers were influenced by the UNCITRAL Model Law on Electronic Commerce (United Nations, 1996). Singapore adopted a "hybrid" model—a preference for the digital signature and PKI in terms of greater legal presumption of reliability and security, but not to the exclusion of other forms of electronic signatures. The digital signature is given more respect under the Singapore statute, but it was

not granted a monopoly as in the first generation. This technological open-mindedness is commensurate with a global perspective and allows parties to more easily consummate electronic transactions with parties from other nations. Although granting legal recognition to most types of E-signatures, the Singapore statute makes a strong suggestion to users—in two ways—that they should use the digital signature because it is more reliable and more secure than the other types of E-signatures: (1) digital signatures employing PKI are given more respect under rules of evidence in a court of law than other forms of electronic signatures, and E-documents signed with them carry a legal presumption of reliability and security—these presumptions are not given to other forms of E-signatures; and (2) although all forms of E-signatures are allowed to be used in Singapore, its E-signature law established comprehensive rules for the licensing and regulation of Certification Authorities, whose critical role is to verify the of authenticity and integrity of electronic messages affixed to electronic signatures (Singapore, 1998).

In recent years, more and more nations have joined the Third Generation. The moderate position adopted by Singapore has now become the progressive trend in international E-signature law. The hybrid approach is the one taken by: the European Union's E-Signatures Directive (European Union, 1999); Armenia (Blythe, 2008); Azerbaijan (Blythe, 2007); Barbados (Blythe, 2006); Bermuda (Fischer, 2001), Bulgaria (Blythe, 2008); China (Blythe, 2007); Colombia (Blythe, 2009); Croatia (Blythe, 2008); Dubai (Blythe, 2007); Finland (Blythe, 2008); Hong Kong (Blythe, 2005); Hungary (Blythe, 2007); Iran (Blythe, 2006); Japan (Blythe, 2006); Lithuania (Blythe, 2007); Pakistan (Blythe, 2006); Peru (Blythe, 2009); Slovenia (Blythe, 2007); South Korea (Blythe, 2006); Taiwan (Blythe, 2006); Tunisia (Blythe, 2006); Vanuatu (Blythe, 2006); and in the proposed statutes of Uganda (Blythe, 2009). Many other nations are either currently using the hybrid approach or are considering the adoption of it; Burma is one of them.

Burma's Electronic Transactions Law

Objectives of the ETL

The Electronic Transactions Law (Burma, 2004: *hereinafter, "ETL"*) became effective on 30 April 2004 (ETL, Preamble). The purposes of the ETL are to: (1) facilitate the utilization of electronic transactions throughout Burma and thereby positively affect the development of the nation's human resources, economy, education and social services; (2) legally recognize electronic transactions having authenticity and integrity; and (3) improve domestic and international communication via transmission, reception and storage of data and messages in electronic form (ETL s 3). If any other laws of Burma conflict with the ETL, the ETL will prevail (ETL s 51).

Implementing Agencies of the ETL

The federal government department charged with responsibility for implementation of the ETL is the Ministry of Communications, Posts and Telegraphs ("Ministry") (ETL s 6(a)).

The Ministry appoints the members of the Central Body of Economic Transactions ("Central Body") and gives it financial support (ETL s 43). The Central Body is responsible for: (1) planning for application of information technology; (2) developing educational programs to teach information technology; (3) ensuring that the information technology adopted is commensurate, and will mesh, with information technologies of other nations that Burma may desire to interact with in the future; and (4) creation of an Electronic Transactions Control Board ("Control Board") to oversee the detailed, day-to-day aspects pursuant to the statutory purview (ETL ss 7, 9).

The Control Board's duties include: (1) licensing of Certification Authorities ("CA"), and consideration of recognition of a foreign CA for the purpose of doing business in Burma; (2) enforcement of the CA's qualification and experience requirements; (3) overseeing how the CA conducts its business, and inspecting the CA's records if necessary; (4) overseeing the relationship between the CA and its subscribers, and settling disputes between them; (5) regulation of the CA's computer information systems; (6) maintaining a publicly-accessible database (ordinarily, at its website) containing information regarding CA's; (7) investigation of any person or entity suspected of commission of computer crimes as defined in the ETL; and (8) periodically reporting its activities to the Central Body or to the Minister of Communications, Posts and Telegraphs (ETL s 10).

Both the Central Body and the Control Board are immune from civil or criminal liability so long as they have acted in good faith in the exercise of their duties (ETL s 49).

Exclusions

The trend in worldwide E-commerce law is that the typical list of exclusions (which prohibit utilization of electronic documents) is slowly being shortened. However, Burma does have a list of exclusions. Burma does not allow electronic documents to replace paper documents in: wills; negotiable instruments; trusts; powers of attorney; deeds and other title-related documents; instruments required by another law to be registered; and other matters to be determined by the Ministry (ETL s 5).

E-Government

Notwithstanding the list of exclusions, government agencies in Burma are encouraged to promote E-government policies as soon as possible. Accordingly, government agencies must recognize the validity of electronic documents in order to comply with: (1) document filing requirements of citizens; (2) document retention requirements of citizens and government; (3) issuance of licenses by government; and (4) making payments by citizens and government, and issuance of receipts (for payments) by citizens and government (ETL s 39). However, each government agency has the discretion to issue rules regarding format of the electronic document and security methods to be used (ETL s 40).

Legal Recognition of Electronic Documents and Signatures

The core of the ETL is contained in this sentence: *The legal validity of a record, message or signature will not be denied based on the mere fact that it happens to be in electronic form* (ETL s 48). However, the parties are allowed to make an agreement that only paper documents will be used (ETL s 20). Electronic records are admissible as evidence in a court of law if their integrity can be proven (ETL s 46). Furthermore, if a statute requires that documents must be retained, the electronic form will be permissible to satisfy this requirement (ETL s 39(a)). However, the party using the document may specify format and security requirements (ETL s 40).

Electronic Contract Rules

In the absence of a contrary agreement, a contractual offer and acceptance may be communicated in electronic form (ETL s 21).

Attribution

A receiver of an electronic message is entitled to presume that it has come from a specific sender, provided: (1) the sender sent the message, using the sender's ordinary procedure; (2) the sender's agent sent the message, using the sender's ordinary procedure; (3) the sender's computer information system (programmed by the sender or her agent) sent the message; or (4) the message was sent in accordance with a procedure previously agreed to by the sender and receiver (ETL ss 22-23).

Time of Dispatch and Receipt

An electronic message is deemed to have been sent when it enters a computer information system outside the control of the sender or her agent. The electronic message is considered to have been received when: (1) it enters the specific computer information system that the receiver requested it be sent to; however, if it enters another information system accessible to the receiver but not the one she specified, the applicable time is when the receiver retrieves it from the other system; or (2) if the receiver has not designated a specific computer information system for the message to be sent to, the applicable time is when the message enters any information system under the control of the receiver. These rules may be varied by agreement of the parties (ETL s 26).

Place of Dispatch and Receipt

The message will be assumed to have been sent or received from the respective business place of the sender or receiver. If the sender or receiver has more than one place of business, the principal place of business will apply. However, if the sender or receiver is a person and does not have a business place, the message is considered to have been sent from the person's "place of permanent residence." On the other hand, if the sender or receiver is a corporation, the place of transmission or receipt is its location of incorporation and legal establishment (ETL s 27).

Acknowledgement of Receipt

Before or at the time the message is sent, the parties may make an agreement as to how the receiver is to acknowledge receipt of the message. The acknowledgement may be in words, including words automatically generated by a computer information system; or it could be expressed through the receiver's conduct (ETL s 24). If the sender tells the receiver that the message is conditional on the sender's receipt of the acknowledgement, then the message is not considered to have been transmitted until the sender is in receipt of the confirmation. However, if the sender has requested an acknowledgement of receipt from the receiver (with no specified amount of time allowed for it to be made), but has failed to make the message conditional on the sender's receipt of the acknowledgement, then the sender is allowed to withdraw the message after the passage of a reasonable period of time. In the situation covered in the last sentence, but with a time limit placed upon the receiver for her to communicate the acknowledgment, the sender is

Regulation of Certification Authorities

The Certification Authority ("CA") plays a critical role in the public-key-infrastructure system. The CA's duty is to verify the authenticity of the electronic signature, i.e., that the signer is who she purports to be. The CA also has a duty to ensure the integrity of the electronic message that the electronic signature is affixed to, i.e., that it has not been altered since its creation (ETL s 10).

Licensing of CA's

The Ministry is authorized to make regulations relating to the duration of the license period, the initial license fee, and the fee for renewal of the license (ETL s 41). Any person or entity inside or outside of Burma may apply to the Control Board for a license (ETL s 12). Before the license is issued, the Control Board will require a prospective CA to: (1) prepare a Certification Practice Statement ("CPS"), which is a detailed list of the CA's policies, procedures and rules to be followed in the conduct of its business (ABA, 1995-96); (2) acquire a reliable and trustworthy computer information system which is suitable to the performance of its work;(3) establish a sound security system which will maintain the confidentiality of the subscribers' personal information; (4) show that it is capable of issuance of certificates containing all pertinent information; (5) show that it is capable of promptly disclosing to subscribers and relying third parties (using the CPS procedures) of any new facts which indicate that information in the certificate is inaccurate; and (6) comply with all other regulations prescribed by the Control Board (ETL ss 13-14).

Issuance, Suspension and

Revocation of Certificates by a CA

Any person may apply to a CA for issuance of a Certificate. One of the most common activities of a CA is to consider applications for Certificates, and to issue the Certificates if the applicants meet the qualifications (ETL s 16). It is important for the applicant to be entirely truthful in the information given to the CA. If issued, a Certificate must contain all pertinent information which a relying third party needs to verify the authenticity and integrity of the subscriber's electronic signature and the message it is attached to (ETL s 17(b)). The CA has a duty to either suspend or revoke a Certificate whenever the subscriber has not adhered to any condition stated in the Certificate, or has violated the ETL (ETL s 29).

Liability of Subscribers and CA's

The CA is immune from criminal or civil liability so long as it exercises its duties with reasonable care (ETL s 49). In the context of international E-commerce law, it is unusual to give the CA a virtual "free ride." Instead of the onus partially being placed on the CA, the ETL places it almost totally on the subscriber. The subscriber is obligated: (1) to ensure that all information in the Certificate is accurate; and (2) to maintain security over her private key and if it is lost or its security is compromised, to give prompt notice to the CA and to relying third parties (ETL s 17). If the subscriber fails to meet these obligations, she will be liable for consequential damages of relying third parties (ETL s 18).

Revocation or Suspension of the CA's License

If the conditions of the CA's license have not been complied with, or if the CA has violated the ETL, the Control Board may implement the following actions: (1) a penalty; (2) suspension of the CA's license for a period of time; or (3) revocation of the CA's license.

Computer Crimes

The ETL includes a number of penalties for computer crimes (ETL s 44). The computer crimes are enforceable by Burma's Police Force (ETL s 45).

Conviction of the following acts will result in imprisonment of 7 years (minimum) to 15 years, plus the possibility of a fine: (1) disclosure of state secrets; or (2) committing acts detrimental to national security, law and order, national solidarity, the national economy or the national culture (ETL s 33).

Conviction of these acts will result in a jail term of   5 years (maximum) and the possibility of a fine: (1) committing unauthorized acts of hacking, stealing, tampering, or modifying hardware or software used in a computer information system; (2) committing interception of computer messages without the permission of the sender and the receiver; (3) engaging in communication with another person, without authorization of said person, by using the person's "security number, password or electronic signature;" and (4) modifying the information contained in another's computer information system, and then disseminating that information to the detriment, embarrassment or harm of that person (ETL s 34).

A CA and its employees may be imprisoned for a period of 3 years (maximum), and may possibly be fined, for failing to abide by any prohibitions (e.g., the suspension or revocation of the CA's license, which would forbid the CA from operating its business either temporarily or permanently) listed in an order issued by the Control Board (ETL s 35).

Conviction of the following acts will be punished by a jail sentence of 1 year (maximum), plus the possibility of a fine: (1) Giving false information to a CA in an application for a Certificate, wrongfully pretending to be an agent of another in an application, or being an imposter when requesting the CA to suspend or revoke the Certificate; (2) failing to cooperate with the Central Body or the Control Board as they seek to carry out their duties pursuant to the ETL, or assaulting their integrity in an attempt to impugn their status; or (3) violation of a provision of the ETL (ETL ss 36-37).

Additionally, persons attempting or conspiring to commit the aforesaid acts, and those abetting the aforesaid acts, will be punished just as if they had been the principal party (ETL s 38). Finally, if a party defaults in the payment of a fine levied under the ETL, the Control Board may act against said party using the same procedures that would be applicable if the party was in "arrears of land revenue" (ETL s 42).

Recommendations for Improvement of Burma's Electronic Transactions Law

Burma has made a commendable beginning toward attainment of a sound electronic transactions law. If Burma overcomes its political difficulties and is able to achieve a greater degree of economic growth, it will be able to take advantage of the opportunities that the ETL provides. Although the ETL is a significant accomplishment, it has not gone far enough. The following amendments should be considered.

Add: More Potential Liability for CA's

As mentioned, it is unusual in international E-commerce law to find a situation of virtual immunity of CA's. CA's in Burma do not incur legal liability so long as they exercise reasonable care. This needs to be changed. Too much responsibility is placed upon the shoulders of the subscriber, and too little responsibility is placed upon the shoulders of the CA. Some of the burden of potential liability should be transferred from the subscriber to the CA. The computer law of the Republic of Vanuatu can be used as a model (Vanuatu, 2000).

Add: Recognition of Electronic Wills

The ETL excludes wills from its coverage. The result is that a will is required to be in paper form with a handwritten signature of the testator in order to be enforceable. This exclusion should be eliminated. The aversion to electronic wills is beginning to dissipate. In 2005, the U.S. State of Tennessee became the first American jurisdiction to recognize the legal validity of a will that is executed with an electronic signature (Ross, 2005). Electronically-signed wills should be recognized.

Add: Long-Arm Jurisdiction against Foreign Parties

Because so many of the E-commerce transactions incurred by the residents of Burma will be with parties outside the borders of Burma, it would be prudent for the ETL to explicitly state its claim of "long arm" jurisdiction against any E-commerce party who is a resident or citizen of a foreign jurisdiction, so long as that party has established "minimum contacts" with Burma. The Kingdom of Tonga can be used as a model; that country explicitly states its claim of long-arm jurisdiction over foreign E-commerce parties (Tonga, 2003).

Minimum contacts will exist if a cyber-seller outside of the country makes a sale to a person in Burma. In that situation, the laws of Burma should be applicable to the foreign party because that party has had an effect upon the country through the transmission of an electronic message that was received in Burma. The foreign party should not be allowed to evade the jurisdiction of the Burmese courts merely because he is not physically present in the country. After all, E-commerce is an inherently international and multi-jurisdictional phenomenon.

Add: Reciprocal Recognition of Foreign CA's and Their Issued Certificates

Most international E-commerce laws now provide for various forms of legal recognition of foreign CA's and certificates issued in foreign countries. This is essential because E-commerce transactions often straddle international borders. Turkey's Electronic Signature Law is a typical example and can be used as a model (Turkey, 2004).

Add: Consumer Protections for E-Commerce Buyers

Burma needs to enact a general consumer protection statute applicable to all internet consumers. The Republic of Tunisia can be used as a model for good consumer protections. The Tunisian E-commerce statute gives consumers: (1) a "last chance" to review an order before it is entered into; (2) a 10-day window of opportunity to withdraw from an agreement after it has been made; (3) a right to a refund if the goods are late or if they do not conform to specifications; and (4) no risk during the 10-day trial period after goods have been received. Tunisian E-consumers enjoy some of the best protections in the world (Tunisia, 2000).

Add: I.T. Courts for E-Commerce Disputes

Because of the specialized knowledge often required in the adjudication of E-commerce disputes, Information Technology ("I.T.") Courts should be established as a court-of-first-instance for them. The I.T. Courts would be tribunals consisting of three experts. The chairperson would be an attorney versed in E-commerce law, and the other two persons would be an I.T. expert and a business management expert. The attorney would be required to hold a law degree and be a member of the bar with relevant legal experience; the I.T. person would be required to hold a graduate degree in an I.T.-related field and have experience in that field; and the business management expert would be required to hold a graduate degree in business administration and have managerial experience. The E-commerce law of Nepal can be used as a model (Nepal, 2005).

Add: Consolidation of the Ministry's Bureaucratic Layers

Is it really necessary to have two bureaucratic layers of administration within the Ministry of Communications, Posts and Telegraphs? It's doubtful. The Central Body and the Control Board should be combined, and the consolidation should report directly to the Minister.

SUMMARY AND CONCLUSIONS

Since it became independent in 1948, Burma has been plagued with a succession of military dictatorships. The present government refuses to recognize the election of Nobel Peace Laureate Aung San Suu Kyi, and keeps her under house arrest. Nevertheless, the legal foundation of Burma continues to develop, serving as a beacon towards a brighter day for the country. One example is the Electronic Transactions Law ("ETL") of 2004, a solid framework upon which E-commerce and E-government can be built in the future. The ETL recognizes the legal validity of electronic records, messages and signatures. The statute contains a third-generation E-signature law; all forms of electronic signatures are recognized, but a preference is given to the heightened security afforded by the digital signature. Commensurate with that preference, the ETL establishes a compulsory system of licensing of Certification Authorities, prescribes detailed rules for them to follow, and assigns the Control Board to oversee their activities. The ETL contains a list of computer crimes, some of which are punishable by 15 years' imprisonment. Is the ETL up-to-date according to current trends in international E-commerce law? Not quite. Recommended amendments are to: (1)increase the potential legal liability of CA's; (2) recognize the legal validity of electronic wills; (3) add consumer protections; (4) claim "long arm" jurisdiction over foreign parties in E-commerce transactions; (5) compress the ETL's bureaucracy through consolidation of the Central Body and the Control Board; (6) provide for reciprocal recognition of foreign CA's and foreign certificates; and (7) establish Information Technology tribunals as a court-of-first-resort for E-commerce disputes.

A Final Comment

The author is optimistic that Burma will eventually overcome its political difficulties, achieve more recognition of human rights and re-join the world community. Burma is blessed with an abundance of natural resources and a hunger for democracy (as shown in the overwhelming vote for Aung San Suu Kyi in 1990). Most often, despotism does not prevail in the long run. Freedom can be expected to come to Burma. With it will come the Rule of Law, the lifting of controls over the internet, the necessary refinement of the Electronic Transactions Law, and the economic development of the country.

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To Develop Outsourcing: New Growth Point

of Northeast China Using FDI

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Abstract

Outsourcing, as a new pattern of service industry in new century, has already become a hot spot of multinational corporations' FDI (foreign direct investment). The execution of the Northeast revitalization strategy creates chances for enlarging the openness of outsourcing and developing the outsourcing by FDI. This paper analyzes the problems in the Northeast developing outsourcing and advances policy suggestions for driving the development of Northeast outsourcing.

Keywords: Northeast China (the Northeast), Outsourcing, FDI

1. Introduction

At the background of international financial crisis, traditional industries grow slowly due to the impact of financial crisis. In contrast, outsourcing industry grows fast, becoming an important field for all countries' industrial competition. Since in 2004 China starts the Northeast revitalization strategy, the Northeast speeds up their opening-up. Its industrial structure and foreign investment environment continue to be optimized. All these facts offer basic conditions for the Northeast developing outsourcing industry. Outsourcing is a new pattern for international service transfer, in which multinational corporations serve as the subjects. Multinational corporations not only generate the great demands for international sourcing, but also serve as the main takers and drivers for international outsourcing. World Investment Report 2007 shows that the migrant of multinational corporations' R&D internationalization, outsourcing, and top manufacturing projects in China are the three opportunities for improving China's ability of absorbing foreign capitals in the future. To attract multinational corporations to develop outsourcing by FDI can help the Northeast to exert its competitive advantages, improve the specialization of service industry in the Northeast, optimize the investment environment, and enhance the world competitiveness of the Northeast, what are meaningful for the Northeast's economic revitalization and sustainable development.

2. Main problems in the development of outsourcing in the Northeast

In recent years, the Northeast regards the development of outsourcing as an important breakthrough for adjusting the industrial structure. The government supplies policy support. The patterns of outsourcing are enriched and the industrial size is larger. In front of world financial crisis, the Northeast's outsourcing industry has already achieved significant successes. However, compared with developed countries and the developed area in China, the Northeast's outsourcing is still at the starting stage.

2.1 The outsourcing develops fast but the size is still small

In Mar. 2007, the State Council issues *Opinions of Accelerating the Development of the Service Sector*, taking international outsourcing as the key for enlarging service trade, researching and constituting a series of policies for outsourcing, cultivating a batch of qualified outsourcing corporations, and forming several outsourcing bases. In Sep. 2009, the *Issues on Further Implement the Strategy of Northeastern Region and Other Old Industrial Bases Revitalization* emphasizes: speed up the development of outsourcing industry, especially the outsourcing in three demonstration cities, namely Dalian, Haerbin, and Daqing, and support relevant cities, such as Yanji, and Suifenhe, to develop the outsourcing industry based on special regional advantages. Take Dalian for example, where the outsourcing develops fast. From 1998 to 2008, the revenue from software outsourcing rises from 200,000,000 to 30,200,000,000, creating an annual growth rate of 68.2%. It explores a Dalian-characterized software development road, what makes Dalian turn into a leading city of China's software and outsourcing industry.

Though, the size of outsourcing industry in the Northeast needs to be improved in general. Compared with the world, in 2006 China's outsourcing industry realizes the revenue of 11,800,000,000 Yuan. Thereof, 7,560,000,000 Yuan are from software outsourcing, and 4,270,000,000 Yuan. It merely accounts for 10% of world market shares. In contrast, India has already accounts for 65% of world software outsourcing market shares, and 46% of global outsourcing market shares. It is estimated that the scale of world outsourcing market will reach 230 billion US dollars in 2009. At present, China has the market share of 10 billion US dollars, lagging far behind India's predicted 30 billion US dollars. From the

domestic market, Beijing and Shanghai's outsourcing accounts for 50% of the country. In contrast, the size of Northeast outsourcing is small, merely accounting for 20% of the total.

2.2 The outsourcing field is narrow, being the bottom of value chain.

Outsourcing is high-tech industry, with higher added value and lower resource consumption. It covers a wide fields, concerning IT service, finance, insurance, R&D, HR, accounting, customer service, and product design. However, China's outsourcing only relates with information technology, R&D, and finance. In the Northeast, the software outsourcing is dominating, seldom concerning other fields.

Compared with India, China's software outsourcing is lagged behind. The market share is small. And 65% of revenue from outsourcing is from low value-added application software development outsourcing offered by Japanese customers. According to a survey from the Localization Industry Standards Association (LISA), a Chinese firm has taken an international software outsourcing project valued 25 million US dollars. However, it has to pay 20 million US dollars as patent fees to foreign experts. Deleting kinds of R&D expenditure, the firm can get the profit no more than 500,000 US dollars. It indicates that Chinese corporations are at the bottom of value chain, lacking of core techniques, and low profit ratio. As a result, the whole industry does not possess a strong competitiveness. The Northeast is short of competitive large outsourcing corporations, which is originated from the general condition of outsourcing in China. The largest software outsourcing corporation in the Northeast----- Neusoft actualizes the revenue of 101,000,000 US dollars in 2006. The distance is considerable compared with foreign corporations whose business return can reach 1 billion US dollars. The smaller size of corporations is not helpful for corporations in the Northeast taking up top projects, which weakens the market competitiveness of these corporations.

2.3 The development of export market for outsourcing is unbalanced.

Viewing from the world, the contractees are mainly from America, Europe, and Japan's multinational corporations and international institutions. Thereof, two thirds are from America, and one third from EU and Japan. The contractors are mainly India and Ireland. And the American market is mainly for India. European market is monopolized by Ireland. Considering the market segmentation, Japan is still China's dominating target market. According to the Market Seasonal Monitoring on China's Software Offshore Outsourcing in the Second Season in 2007 issued by Analysys International, Japan is still the largest outsourcing market for China. It accounts for 51.8% of the market share. And Europe and America account for 29.4% of the market share. And Hong Kong is 10.0% of the market share.

In general, China's software outsourcing still at the starting stage as it enters the European and American market. Because of historical, cultural, and regional elements, the outsourcing corporations in the Northeast mainly take Japanese businesses. For example, Dalian, as the first outsourcing base in China, undertakes 80% of Japanese outsourcing business. Considering the limited shares of Japan in world outsourcing market, the Northeast corporations begin to step into a multiple road. They explore the European and American market actively. However, the fact of highly-intensive outsourcing market can not be changed in a short period.

3. Policy suggestions for speeding up the development of outsourcing industry in the Northeast

Global FDI starts to lay stresses on service industry, which serves as an ideal opportunity for the Northeast enlarging the openness of outsourcing, and developing the outsourcing industry by FDI. The Northeast should make up relevant active policies for driving the new development of outsourcing by following the tide of FDI.

3.1 Make best use of the Northeast's comprehensive advantage as the manufacturing base, and encourage multinational corporations to extend their business toward service

The transfer of world manufacturing center offers an excellent chance for China's manufacturing industry realizing a leap development. Develop the domestic outsourcing by extending the industrial chain of manufacturing. It can benefit the service industry. The giant manufacturing industry will generate a considerable market need for domestic outsourcing. By this way, it can improve contractees' core competitiveness on one hand. On the other hand, it can overcome the structural unbalance of China's manufacturing and service industry in a sense. In perspective the world, it is a tendency for manufacturing enterprises outsourcing the supportive activities in production value chain to specialized service suppliers. Furthermore, the manufacturing center becomes the outsourcing center. And the service center can turn into a manufacturing center. Especially, the manufacturing base has already possessed the matured investment environment and industrial integration effect, which supplies convenience for extending toward an outsourcing center. It can decrease investment costs significantly. Facts show that some multinational corporations are thinking about integrating the manufacturing center and the service center to achieve a higher synergy effect. Therefore, we should guide foreign investors to focus on the advanced and specialized service market.

At present, China is still at the middle age of industrialization. Economic growth mainly depends on manufacturing. Especially for the Northeast as the old manufacturing base, the service industry does not turn into the dominating strength for driving economic growth. The low proportion of service industry and the unbalanced structure greatly

restrict the development of outsourcing in the Northeast. In order to further speed up the development of outsourcing in the Northeast, we should not only make best use of domestic policies and sources, but also grasp the Northeast's advantage of developed equipment manufacturing, enlarging the size of outsourcing industry using foreign capitals, by guiding foreign investors transferring the investment from manufacturing base to advanced and specialized service market.

3.2 Take offshore outsourcing

According to the geological distribution of suppliers, outsourcing is sorted into two types: onshore outsourcing and offshore outsourcing. The onshore outsourcing means the contractee and the contractor are from the same country. And the business is done in one country. The offshore outsourcing means the contractee and the contractor are from different country. And the business is done in not only one country. In recent years, the size of offshore outsourcing is larger. The contractors are from various countries in the world. The scale of global offshore outsourcing rises from 19.2 billion US dollars in 2004 to 50 billion US dollars in 2007. Mckinsey Global Institute says that the workers in offshore outsourcing will be 4.1 million in 2008. Considering the fast development of offshore outsourcing, Ministry of Commerce of China has already listed the offshore outsourcing as one of key industries since 2006. To take international offshore outsourcing can help to enlarge the openness of the Northeast, which can pull the development of offshore outsourcing by FDI. Make best use of rich human resources of the Northeast and cultivate a large batch of qualified service suppliers. Strengthen the competitiveness in ITO (information technology outsourcing) and cultivate the ability of BPO (business process outsourcing). Accept the transfer of world services, such as computer center, call center, data process, R&D, financial accounting, and after-sale services. Drive world famous outsourcing corporations to enter the Northeast. Introduce a series of world famous outsourcing corporations to set up investment firms and R&D centers in the Northeast. In the process of driving the development of outsourcing in the Northeast, absorb the rich experiences of multinational corporations in information technology consultation and services. Improve the top service ability. It can attract multinational corporations to transfer their business to the Northeast.

3.3 Continue to open the service market and broaden the FDI market entrance

With the basis of defining the outsourcing concept, make up specific policies for encouraging FDI to pull the outsourcing development. Under certain conditions, list the outsourcing in the direction for foreign investors. Besides, list the outsourcing items in the direction that needs official supports. Apply different opening policies to different industries. Open the accounting and telecom thoroughly. Open the urban infrastructure construction, medical care, culture, and education step by step based on summarized experiences. Open the banking sector, securities, and insurance carefully, considering the financial monitoring level and national economy in the Northeast.

In recent years, favorable macro economic situation, significant market advantage, and giant manufacturing create large demands for services, which make China more attractive for multinational corporations. More and more international institutions take China as a newly-developed market and important R&D base for multinational corporations' services transfer and outsourcing. The Northeast should grasp the chance, continuing to improve the quality and level of FDI, attracting more multinational corporations to set up R&D centers, operation centers, and regional headquarters, introducing advanced ideas, techniques, and management experiences of international outsourcing, and driving the improvement of the outsourcing in the Northeast.

3.4 Speed up the construction of regional outsourcing base and create preconditions for multinational corporations' agglomeration.

The outsourcing cluster is a new concept based on world experiences. The cluster is originated from industrial association effect and social network effect. It has the characteristics of resource share, service network system, and brand effect. Objectively, it builds a nice industrial ecological environment for the development of outsourcing. The brand effect can help service firms to obtain higher market acceptance and occupation ratio, further improving the market needs for regional services. The competition and cooperation between enterprises can improve the effective supply of services, exploring new market spaces for outsourcing development. To build outsourcing clusters is meaningful for the Northeast using FDI to develop outsourcing, which directly affects the technological level of outsourcing enterprises. The technological overflow effect, as the inner function of multinational corporations' direct investment, is inevitable. However, it is uncertain for whether it can improve the technological level of host country or not. The effectiveness of overflow is determined by whether the host country creates the environment and conditions for technological overflow. The outsourcing cluster is a favorable try for driving the technological overflow. The reason is: the closer the host country's industry is to the industry invested by multinational corporations, the stronger the overflow effect of advanced technology is. If the association of multinational corporations and host country's economy is weak, the multinational corporations' economic activities will seldom generate technological effect on local economy. Build an outsourcing cluster and achieve the agglomeration of outsourcing enterprises. Strengthen the association of international outsourcing corporations and local enterprises. Enhance the synergy and cooperation. And further improve the enterprises' ability of absorbing advanced technologies in the Northeast.

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