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GOVERNMENT, BUSINESS GROUPS, AND CORPORATE ENTREPRENEURIAL INTENSITY DURING INSTITUTIONAL TRANSITION

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

DAPHNE YIU
Norman, Oklahoma
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GOVERNMENT, BUSINESS GROUPS, AND CORPORATE ENTREPRENEURIAL INTENSITY DURING INSTITUTIONAL TRANSITION

A Dissertation APPROVED FOR THE

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

TABLES

FIGURES

ABSTRACT

This dissertation aims to study the relationship between the transitioning formal and informal institutions and firm strategy during institutional transition. The central premise is that during the period when pre-existing institutions have not been fully abolished and new institutions take time to come into place, both pre-existing and emerging institutions exert different influences on the economic growth of a country via their effects on firm's corporate entrepreneurial intensity. To empirically examine this theoretical premise, this dissertation examines how government influence (as a formal institution) and the control mechanisms of business groups (as an informal institution) simultaneously influence the wealth-creating corporate entrepreneurial strategy of member firms in a business group in a transition economy.

With archival and perceptual survey data from 992 member firms of the largest 250 business groups in the transition economy of China, it is found that formal institutions in various forms of government influence exert different impacts on corporate entrepreneurial intensity. Institutional legacy effects in the form of government's administrative and ownership heritage have a hindering effect, while reform policy has an enhancing effect, on firms' corporate entrepreneurial intensity. As for informal institutions, cultural, strategic, and financial controls are positively related to corporate entrepreneurial intensity of group member firms. This confirms the importance of business groups as an informal void-filling institution in the transition economies. These findings enriched our understanding on the relationship between institutions and strategy during institutional transition, governance in business group, and wealth-creating entrepreneurial growth in transition economies.

CHAPTER ONE

INTRODUCTION

Transition economies refer to those emerging economies that are changing from one with centralized (primarily communist) state control to one governed by market-oriented policies. One of the major characteristics of transition economies is a rapid pace of economic development, which is fostered by government policies favoring economic liberalization and the adoption of a free-market system (Arnold & Quelch, 1998; Hoskisson, Eden, Lau, & Wright, 2000). Although undergoing rapid economic growth, transition economies are still in the progress of building institutional infrastructures that support well-functioning markets for capital, management and labor, and production and technology. Accordingly, compared to developed economies, transition economies are underdeveloped in terms of soft infrastructures (legal system, property rights, financial intermediaries, education, etc.) as well as hard infrastructures (e.g., transportation and telecommunication). So, during the institutional transition, that is, the period when pre-existing institutions have not been fully abolished and new effective market institutions have not been taken into place, an institutional void is resulted (Khanna & Palepu, 1997, 2000a, 2000b; Spicer, McDermott, & Kogut, 2000).

How is such an institutional void being filled to foster rapid economic growth during the institutional transition? Qian (2000) proposed that government is the second-best response to the institutional failures faced by transition economies. Sachs (1996) also empirically found that the reform progress accounted twenty-five percent of the differences in average economic growth rates among the transition economies in Eastern European and the former Soviet Union. This suggests that an important void-filling institution to foster economic growth in transition economies is the more formal nature of institutions, the government.

In addition to the formal role of government in filling the institutional void, researchers started to realize that diversified business groups emerged as a growth engine in most emerging and transition economies to fill the institutional voids (Khanna & Palepu, 1997, 2000b). Diversified business group is defined as a collection of legally independent firms that are bound by economic and social ties. They are commonly known as *keiretsu* in Japan, the *chaebol* in Korea, the *grupos economicos* in Latin America, the *twenty-two families* of Pakistan, the *qiye jituan* in China, the *quanxi qiye* in Taiwan, and so on. Diversified business groups are conceptualized as responses to imperfections in the capital, labor, and product markets (Caves & Uekusa, 1976; Chang & Choi, 1988; Khanna & Palepu, 1997, 2000b; Leff, 1978, 1979; Weistein & Yafeh, 1998). Compared to government, diversified business group is a more informal nature of institutions that emerge to facilitate economic growth during institutional transition.

The purpose of this dissertation is to examine how formal and informal institutions influence the economic growth of transition economies during the period of institutional transition. The central premise is that government and diversified business groups are the most effective formal and informal institutions respectively to fill the institutional void in transition economies. As for formal institutions, government substitutes for institutional failures in transition economies. During institutional transition, government has two contradictory roles. On the one hand, government can be regarded as a long-lasting formal institution from the pre-transition period. Government will exert an institutional legacy effect on economic growth via their administrative heritage and ownership effects in firm's corporate entrepreneurial activities. On the other hand, government is carrying out economic reforms to transform the formal institutions in transition economies. Accordingly, from this perspective, government will exert a positive effect on economic growth via the gradual implementation of reform policy to facilitate a firm's corporate entrepreneurial activities. As for informal institutions, diversified business group can be regarded as an informal institution emerged to substitute for institutional failures in transition economies as well. Through their control mechanisms upon member firms, diversified business groups will positively facilitate member firm's entrepreneurial growth activities. To summarize, this dissertation examines how government and diversified business groups simultaneously influence the corporate entrepreneurial intensity of member firms of a diversified business group in a transitional economy.

RESEARCH QUESTIONS AND OVERVIEW OF CONTRIBUTIONS

This dissertation aims to build a theory and provide evidence on the relationship between formal and informal institutions and firm's strategy during institutional transition. Empirically, the dissertation examines how government and business groups influence the economic growth of a transition economy via their effects on firms' corporate entrepreneurial intensity in a context of diversified business groups in China. Specific research questions and contributions of this dissertation are delineated below.

Research Question One: The first research question is a fundamental question in the fields of organization theory and strategic management: What is the relationship between institutions and strategy during institutional transition? The period of institutional transition indicates that formal institutions are transiting and informal institutions are emerging. How will formal and informal institutions fill the institutional voids during such a period of institutional transition? How will formal and informal institutions facilitate economic growth of transition economies respectively and simultaneously? Will there be any conflicts between the old and new institutions and what will be the impact of such institutional conflicts on firm's strategy?

By addressing the question of the relationship between institutions and strategy mentioned above, this dissertation aims to overcome the overly simplistic view of institutional effects in the current literature, and thereby, enhancing the understanding of institutional effects in a period of transition. More specifically, this study attempts to enrich the understanding of the relationships between institutions and organizations in two ways. First, this study aims to highlight the heterogeneous effects of institutional change. Institutional theory, based either on the economics orientation or sociological orientation, has been used as a theoretical perspective in the arenas of strategic management and international business. And yet, current studies assume that the effects of institutional change are homogeneous. However, during institutional transition, existing institutions will be transformed at different stages. Therefore, instead of assuming such institutional effects are homogeneous, this study proposes and shows that institutional change exerts heterogeneous effects on firms' strategic orientation.

Second, this study aims to highlight the simultaneous effects of formal and informal institutions during the institutional transition. Past literature has focused on the relationship between either formal (e.g. economics and international business literature) or informal institutions (e.g. strategic management and sociology literature) and organizations but has not studied both types of institutions simultaneously. This study conceptualizes government and diversified business groups as formal and informal institutions that substitute for institutional failures in a transition economy. As such, the coexistence of formal and informal institutions is emphasized and both types of institutions are examined together to see how they influence firms' corporate entrepreneurial intensity during institutional transition. In all, the first objective of this dissertation is to study the transitioning effects of institutions on firms, which thereby, can enrich our understanding on the relationship between institutions and organizations.

Research Question Two: The second research question examines how a diversified business group is managed. What are the different types of control mechanisms in a business group? How does each of these control mechanisms help maximize the strategic benefits of member firms as well as sustain the stability of the business group?

By addressing the above questions, this dissertation aims to go beyond describing how a diversified business group functions but to address the governance and control aspects of such groups. Theoretically, there have been several explanations for the emergence of diversified business groups. From an economics perspective, diversified business groups substitute for imperfect market institutions in the emerging economies. As such, business groups are conceptualized as responses to imperfections in the capital, labor, and product markets (Caves & Uekusa, 1976; Chang & Choi, 1988; Khanna & Palepu, 1997, 2000b; Leff, 1978, 1979; Weistein & Yafeh, 1998). In general, this literature suggests that business groups emerge to reduce transaction costs, which otherwise would be higher under a market system given the inadequacy of market mechanisms under a market system.

From the sociological perspective, business groups are viewed as value-enhancing organizational forms with solidarity norms and codes of behavior (Granovetter, 1994). Scarcity of resources in emerging economies forces organizations to restrict activity to certain limited functions (specialization), which then requires exchange with other organizations (Cook, 1977). Firms form into groups as a result and develop exchange relationships among member firms. As such, business groups' member relationships become solidified over time through repeated transactions.

Recently, the resource-based view has been used to conceptualize the existence of diversified business groups. Guillén (2000) argued that firms and entrepreneurs enter into business groups in emerging economies so as to build an inimitable capability to combine domestic and foreign resources to enter markets quickly and more cost effectively. From the resource-based view, business groups exist not merely as market substitutes but as a source for member firms to accumulate capabilities and obtain knowledge.

Although the transaction cost, sociological, and the resource-based perspectives provide alternative explanations, each research stream has focused on the rationales for the emergence of diversified business groups. Because previous research has focused on rationales for the emergence of business groups, research on how a diversified business group is managed is rare. This dissertation extends the theories on the fit between organizational controls and strategy in the diversification literature to the diversified business group level. It highlights the importance of the adoption of appropriate control mechanisms to realize the strategic benefits of a business group. By studying the management aspect of a diversified business group, it is hoped that the understanding of both the diversification and business groups literatures will be deepened.

Research Question Three: The final research question examines how entrepreneurial growth is fostered in transition economies. Specifically, this study attempts to find out how government and business groups (as formal and informal institutions) affect economic growth of a country via their impacts on firms' corporate entrepreneurial activities?

By addressing this question, this dissertation can enrich the understanding of wealth creation brought about by corporate entrepreneurship in the transition economies. This study attempts to integrate strategic management and corporate entrepreneurship theories by demonstrating that wealth creation via entrepreneurial growth in transition economies is induced by the creation of larger business groups (entrepreneurship) with government's strategic commitment and support (strategy), instead of through small start-up firms as suggested by the corporate entrepreneurship literature.

Also, the lack of studies and measures regarding how diversified business groups have facilitated entrepreneurial activity in emerging economies is a conspicuous gap in the literature, although there is some literature (Leff, 1978; Leibenstein, 1968) on how governments have sought to use such groups to accomplish economic development. However, measurement from a firm level of analysis is lacking. Exploring the relationship between government and business groups in fostering entrepreneurial incentives can provide important implications to both public policy makers and managers.

Moreover, in the diversified business group literature, current studies have examined the effects of business groups on economic development in emerging economies via their direct effects on firm performance such as profitability or growth (Caves & Uekusa, 1976; Chang & Choi, 1988; Keister, 1998; Khanna & Rivkin, 2001; Khanna & Yafeh, 1999; Lincoln, et al., 1996; Nakatani, 1984). Nonetheless, entrepreneurship as a long-term growth factor in economic development (Leibenstein, 1968) has not been examined closely. In fact, business groups play an important role in contributing to economic development in transition and emerging economies through their entrepreneurial functions. For example, Leff (1978) notes that business groups have been, in effect, implemented as an optimizing macro strategy for economies where entrepreneurship is scarce. Consequently, to evaluate the real impact of business groups on economic development, we need to include the entrepreneurship dimension in the performance measures in order to examine how business groups facilitate the extension of technical frontiers in emerging economies.

In conclusion, the central premise of this dissertation is to study the roles of formal (government) and informal (business groups) institutions, and their effects on firms' corporate entrepreneurial intensity. This study aims to contribute to the literature on the relationship between institutions and organizations, diversification and business groups literature, and corporate entrepreneurship literature.

STRUCTURE OF THE DISSERTATION

The remaining dissertation is organized into four chapters:

Chapter 2 gives an overview of the literature on diversified business groups. In this chapter, both the types and functions of diversified business groups are reviewed. Chapter 3 conceptualizes the theoretical framework of the study and hypotheses are developed. Chapter 4 describes the methodology used in this study. Details of research methods including sample, data collection method, measures, and analytical method are given. Chapter 5 reports the empirical findings. Chapter 6 provides a discussion of the results, draws conclusion, and addresses implications. Also, a future research agenda based on the insights derived from the present findings is presented. The dissertation will end with a concluding remark.

CHAPTER TWO

LITERATURE REVIEW

What is a Diversified Business Group?

Diversified business groups dominate the economies of most emerging countries around the world (Granovetter, 1994; Khanna & Palepu, 1997, 2000b) and flourish in many developed economies as well. They are known in many countries under various names, the old *zaibatsu* and the modern *keiretsu* in Japan, the *chaebol* in Korea, the *grupos economicos* in Latin America countries such as Mexico and Nicaragua, the *twenty-two families* of Pakistan, the *qiye jituan* in China, the *quanxi qiye* in Taiwan, and family groups in Britain, France, Germany, Hong Kong, India, and Singapore. Despite the widespread existence of business groups, their institutional and strategic role in emerging markets is still poorly understood (Khanna, 2000). Some formal definitions of diversified business groups in the current literature include:

> "A group is a long term association of a great diversity of firms and the men who won and manage these firms." (Strachan, 1976: 18)
>
> "Business group are groups of companies that does business in different markets under a common administrative or financial control", and they are "linked by relations of interpersonal trust, on the basis of a similar personal, ethnic or commercial background." (Leff, 1978: 663)
>
> "One can consider business groups those collections of firms bound together in some formal and/or informal ways, characterized by an "intermediate" level of binding." (Granovetter, 1995: 95)
>
> "A business group is a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action." (Khanna and Rivkin, 2000)

In general, a business group consists of a collection of legally independent firms that are bound by economic and social ties. To date, the literature on business groups has been descriptive, detailing the characteristics of diversified business groups under different country contexts. Empirical efforts have also examined the performance implications of diversified business groups. What follows is an overview of past literature on diversified business groups regarding three main aspects: structure, function, and performance implications. Table 1 summarizes the perspectives and findings of current literature on diversified business groups.

Insert Table 1 About Here

Diversified Business Group: The Structural View

The structural aspect of diversified business groups refers to the unique structural characteristics differentiating business groups from other organizational forms. I summarize the past literature by describing four dimensions of the structural characteristics of diversified business groups: organizational, economic, social, and institutional.

Organizational Ties

A diversified business group is well defined by its diversity of economic activities and the diversity of member firms (Strachan, 1976). Because member firms are involved in diverse industries and economic activities, diversity of activities is a central characteristic of most business groups. Diversity of members is another characteristic and refers to the uniqueness of each member firm where each member has its own needs, asset structures and capabilities, as well as contributions to the group (Chang & Choi, 1988; Strachan, 1976).

Organizational ties among members can be vertical or horizontal. For example, Japanese *keiretsus* are structured horizontally or vertically (Aoki, 1990; Gerlach, 1987). Horizontal keiretsus developed from the Zaibatsu after the Second World War. Each horizontal keiretsu is headed by a main bank. A central trading company, industrial firm, and insurance company also help provide group leadership and strategic coordination. A vertical keiretsu is headed by an industrial firm and affiliated with a main bank. Under the core industrial firm are affiliated suppliers and distribution member firms. In both vertical and horizontal keiretsu, member firms are in various industrial sectors. The groups may be integrated towards upstream, downstream or into related sectors. Similar membership structures can be found in Korean chaebols. However, the tightness of organizational ties varies by business groups. This indicates variations in the degree of centralization in a group as described by Granovetter (1994). For instance, Taiwan's *guanxi giye* are distinctive in that they are usually small firms horizontally organized without a unified management coordination system and are more loosely structured when compared to the Japanese keiretsus and Korean chaebols (Whitely, 1991).

Economic Ties

Ownership structure in a business group, according to Granovetter (1994), refers to the legal relations between the parent and its member firms. Although each of the member firms is an independent legal entity, it is owned directly or indirectly by one or more families as in the case of the Korean chaebols (Chang & Choi, 1988), or a holding company as in the case of the Mexican groups (cf. Granovetter, 1994). Additionally, there may be direct ownership ties between member firms and financial institutions as well as among member firms (Khanna & Rivkin, 2000). For instance, in the Japanese keiretsus, the "main banks" can hold more five percent of equity shares in the keiretsu member firms (Aoki, 1990), and keiretsu affiliates may have significant equity links to each other (Lincoln, Gerlach, & Takahashi, 1992). Finally, indirect equity ties are also common in business groups (Khanna & Rivkin, 2000). Pyramidal ownership structure, or hierarchical chains of ownership, is also found in some business groups in both developed economies such as Italy (LaPorta, Lopes-de-Silanes, & Shleifer, 1999) and in emerging economies such as India (Encarnation, 1989) and Indonesia (Schwartz, 1992).

Social Ties

As emphasized by past researchers, diversified business groups are well-known for their tight and stable social or relational ties among member firms. Strachan (1976) describes that a business group is circumscribed by a fiduciary atmosphere. This suggests that members are connected to each other through relational and social characteristics such as loyalty and trust. Granovetter (1994) stressed that what distinguishes business groups from groups of firms united on financial grounds is the existence of social solidarity and the social structure among member firms. He proposed a structural dimension called the "axes of solidarity", which refers to the social structure underlying the legal and economic connections among member firms in a group. Social solidarity goes beyond the simple trust and loyalty as acknowledged by Strachan (1976) and emphasizes that the social connections among member firms are solidified by such factors as geographic region, political party, ethnicity, kinship, or religion. Leff (1978: 663) mentioned that "members of a business group are linked by relations of interpersonal trust, on the basis of a similar personal, ethnic or communal background."

Hence, it is not uncommon to find director interlocks as in the Japanese keiretsus (Goto, 1982) and the Chinese business groups (Keister, 1998); family ties as in the Korean chaebols where 31percent of the executive officers were family members in the top twenty chaebols, and most core managerial positions are occupied by family members (Steers, Shin, & Ungson, 1989); kinship ties as in the Indian groups (Khanna & Rivkin, 2000), and school ties as in the Chinese (Keister, 1998) and Korean business groups (Ungson, Steers & Park, 1997).

In summary, the social structure of a business group reinforces a culture or a "moral economy" suggested by Granovetter (1994), which refers to the extent to which economic actions within a business group presuppose a moral community in which trustworthy behaviors are expected, normative standards are met, and opportunism is foregone.

Institutional Ties

Diversified business groups are considered as "substitutes for institutions" (Leff, 1976, 1978) or aids to overcoming an "institutional void" (Khanna & Palepu, 2000b) in emerging economies. Structurally, business groups have close links with external institutions. Two major institutions play important roles in a business group: banks and financial institutions, and government. It is said that the "natural history" of business groups, those that do not affiliate with any financial institutions at their foundations, usually acquire a bank early in order to mobilize financial capital for member firms (Leff, 1978). The central position of main banks in the Japanese keiretsus, particularly the horizontal keiretsus, indicates the importance of the role of banks for the group (Aoki, 1990; Gerlach, 1992). The presence and predominance of banks and financial institutions are commonly found in Taiwan's *quanxi qiye* as well. Thus, it is not uncommon to find banks as one of the structural components in many diversified business groups.

The relations between governments and business groups are central in shaping the other dimensions mentioned above including ownership, authority structure, and relations of groups to financial institutions (Granovetter, 1994). Many diversified business groups depend on government support. For instance, Korean chaebols and Taiwan's *quanxi qiye* receive significant government support as they compete internationally (Keister, 2000). Chinese business groups are developed under the government's "administrative guidance" in terms of propaganda and asset injections (Keister, 1998), and Indonesian business groups are dominated by the military in which the generals have persistently pushed business groups in the direction of becoming large conglomerates (cf. Granovetter, 1994).

In summary, the structure of diversified business groups is well defined by diversity in membership, overlapping financial ties, close social relationships, and active involvements by banks or financial institutions and the state. Identifying these structural characteristics helps to facilitate understanding of the functions performed by diversified business groups.

Diversified Business Groups: The Functional View

The functional view of diversified business groups refers to the kinds of roles performed by business groups, and thus the reasons for their existence in the emerging economies. Researchers in several disciplines have theorized about the conditions under which diversified business groups become important actors in emerging economies. I categorize these functions into four major categories: economic, social, political and organizational.

Economic Function

The economic literature conceives of diversified business groups as responses to market failures and associated transaction costs (Caves, 1989; Leff, 1976, 1978). Leff (1978: 667) explained that business groups are a "mechanism for dealing with deficiencies in the markets for primary factors, risk, and intermediate products in the developing countries." He argued that firms in the emerging economies are faced with a choice between relying on inefficient market mechanisms to allocate resources or expanding their own operations to internalize resource allocation that would otherwise take place across market mechanisms. Business groups provide a third alternative by allowing firms to forego dealing in a market which is not efficient and thus fraught with significant transaction costs and to avoid relying on internal mechanisms that might not provide economies of scale in the emerging economies. In other words, business groups can be taken as the most efficient governance structures in the less developed economies for firms to economize on the transaction costs they would pay if relying on the market, and to receive the advantage of economies of scale they would not gain if they relied on themselves entirely (Goto, 1982; Williamson, 1975). Thus, business groups are substitutes for market failures in mobilizing capital on the one hand and on the other hand, substitutes for organization failures in allocating resources efficiently without expanding the scale of operation internally in the less developed countries (Leff, 1978).

Extending the above arguments, Khanna and Palepu (2000b) specify the substitution roles of diversified business groups in emerging economies. They proposed an "institutional void" framework in which they argued that business groups create economic value by filling the institutional voids in the capital market (creating an internal capital market for transferring funds and underwriting security issues), market for managerial talents (rotating talent to member firms in need), input and product market (investing in an umbrella brand name and a reputation for fair dealing), and market for technology transfer (assimilating foreign technology through cooperative arrangements) in the emerging economies. In summary, diversified business groups perform an important role as market intermediaries in the emerging economies (Spulber, 1996).

Social Function

The economic approach has effectively explained the existence of diversified business groups. Yet, the stable pattern of business groups in most of the less developed countries has not been addressed explicitly. By revisiting the Coase theorem (1937), Granovetter (1995) asked why firms aggregate into large entities called "business groups" which are often more stable and coherent than any literature predicts. He challenged the economic notion that economic agents, no matter individuals or firms, can be understood independently of individual ties to other agents. Such a seemingly well-accepted neoclassical economic assumption seems to be contradictory to the reality that firms frequently enter into alliances and conduct business as parts of groups. Granovetter (1995) explained that the choice of organizing economic exchange may not always be determined by economic rationales as the "minimum efficient scale" (Chandler, 1990) and "minimum transaction costs" (Williamson, 1975, 1985), but may be affected by social factors such as symbolism, legitimacy, prestige, and power. In other words, market mechanisms may not adequately coordinate exchange among firms. So, according to Granovetter (1995), business groups coordinate interactions among firms just as firms coordinate interactions among individuals.

Therefore, the sociological school emphasizes that the formation of business groups may have nothing to do with a quest for economic gain, but for other goals such as legitimacy (Scott, 1987), prestige and power (Meyer & Rowan, 1977), and social solidarity (Granovetter, 1995). The ultimate rationale for groups from this perspective is that firms become more isomorphic with their institutional environment (DiMaggio & Powell, 1983).

Political Function

An important function of diversified business groups is their roles in fostering macroeconomic growth in emerging economies (Leff, 1978; Stark, 1996). Many business groups are formed as a direct result of government's economic policies. The notable examples are Korean's chaebols which were formed as a result of the aggressive export oriented development policy of the Korean government (Chang & Choi, 1988; Guillén, 2000), and the formation of China's business groups under government "administrative guidance" in the Economic Reform (Keister, 1998). Political connections are extremely important in emerging economies where an open market for political favors does not exist (Khanna & Rivkin, 2001). Thus, coordinated political lobbying can be taken as a response to market imperfections (Leff, 1978). Through the group, member firms are benefited by government preferential treatment such as for import licenses, bank charters, and tax and investment credits. In sum, although this is not in itself sufficient for explaining the existence of business groups, the political role played by the business groups is particularly dominant where the government has had a strong hand in their development. The literature suggests that this role has been particularly pertinent in business groups in Pakistan (White, 1974), Latin America (Strachan, 1976), Indonesia (Schwartz, 1992), Korea (Chang & Choi, 1988; Guillén, 2000), and China (Keister, 1998; Peng, 2001).

Organizational Function

Diversified business groups have been conceptualized as similar to the multidivisional form organization (Encaoua & Jacquemin, 1982). Chandler (1982: 4) argued that "only the formation of a central administrative or corporate office can permit the group as a whole to become more than the sum of its parts." According to Chandler's view, business groups must shift towards the multidivisional form to realize administrative efficiency. Recently, researchers have adopted a resource-based view to conceptualize the business group phenomenon. Chang and Hong (2000) conceptualized a diversified business group as a portfolio of heterogeneous resources. Member firms not only enjoy the natural benefits resulting from a multidivisional structure, such as economies of scale and scope, sharing resources and risks, and monitoring managers more effectively, but they can also benefit from internal business transactions for the purpose of cross-subsidization. Guillén (2000) also approached the phenomenon of business groups in emerging economies from a resource-based view. He suggested that firms and entrepreneurs, by having access to business groups, could accumulate an inimitable capability to combine domestic and foreign resources to enter industries more quickly and cost-effectively in emerging economies. These two studies addressed directly cross-subsidization and capabilities generated by a business group that sustain unrelated diversification in the long run. However, additional work about how control systems in diversified business groups function to accomplish their organizational role is needed. Accordingly, this dissertation will partly address this issue.

In summary, diversified business groups are performing important economic roles in substituting market failures in emerging economies, social roles in solidifying inter-firm relationships in society, political roles in facilitating national policies, and organizational roles in creating a resource base for member firm. The functional view of business groups has made significant contributions to the field by calling attention to different configurations of possible capabilities facilitated by business groups and by providing a conceptual foundation for future studies.

Diversified Business Groups: Performance Implications

Despite the value-added benefits as explained by a variety of theoretical perspectives reviewed above, empirical evidence about the beneficial effects of business groups on economic development via their effects on the firm performance of member firms has remained mixed (Aoki, 1982; Caves & Uekusa, 1976; Chang & Choi, 1988; Khanna & Palepu, 2000a, 2000b; Leff, 1978; Lincoln, Gerlach & Ahmadjian, 1996; Stark, 1996).

Consistent with the literature, some studies have shown that business groups helped to create positive effects for member firms' performance. Chang & Choi (1988) empirically showed that business groups with a multidivisional structure that reduces transaction costs and provides economies of scale and scope, e.g. the Korean chaebols, result in superior economic performance. Using panel data from 1988 to 1990 on China's 40 largest business groups and their 535 member firms, Keister (1988) found that the presence and predominance of interlocking directorates and finance companies in business groups improved the financial performance and productivity of member firms, and more centralized (centrally controlled) groups performed better than others. Perotti and Gelfer (2001) also provided evidence that group members have higher values of Tobin's q than otherwise comparable independent firms in Russia.

On the other hand, there is also evidence that business groups result in a negative impact on firm performance. Caves & Uekusa (1976) and Nakatani (1984) both found a negative relationship between group membership and firm performance in the Japanese keiretsu. The negative results may be due to the fact that the higher costs of capital of the keiretsu firms may outweigh the benefits derived from the groups. In their words, "interests payments passing to the banks may be a conduit for group-derived rents." (Caves & Uekusa, 1976: 78). The rent-appropriation by banks was empirically tested by Weistein and Yafeh (1999). They demonstrated that most of the benefits from the close relationship between banks and firms were appropriated by the banks. Therefore, bank-firm ties increased the availability of capital to borrowing firms but did not lead to higher firm profitability or growth in times when access to capital markets was limited. But such findings should be weaker with the liberalization of Japan's capital market which would reduce the bargaining power of banks. Outside of Japan, the negative relationship between group membership and firm performance was supported by Khanna and Yafeh (1999). In half of the ten emerging economies in their sample (e.g., Brazil, India, Korea, Taiwan, Thailand), the inter-temporal variance of firm profitability, measured by the ratio of operating returns to assets, was lower for group affiliates than non-group affiliates. These empirical results do suggest that there is, indeed, a cost of affiliating with business groups.

The mixed empirical findings on group-performance relationship may indicate that such relationships are not straightforward. There may be a curvilinear effect or the effect may depend on some contingencies. Past studies have explored several contingency variables on the group-performance relationship. First, the performance effect of group affiliation is contingent on the member position within the business group. Lincoln et al. (1996) found that there is a "redistribution effect" in the Japanese keiretsus where the stronger firms are taxed more to be in the group, which in turn, becomes a safety net for the weaker firms. In their study of 197 Japanese firms over a 24-year period, Lincoln and his colleagues (1996) found that weaker member firms benefit from group membership while stronger member firms do not. Accordingly, owing to such redistribution effects, there is much less variability in the performance of keiretsu firms relative to independent firms. Chang and Hong (2000) found similar results in the Korean chaebols. They pointed out that cross subsidization occurs when the outflow of financial resources, particularly in terms of debt guarantee variables, diminishes the profitability of the providers and the inflow of such capital would increase the profitability of the recipients in the chaebols.

Second, the performance effects of group affiliation may depend on covariates such as group size and group diversification. Khanna & Palepu (2000a) found a curvilinear relationship between firm performance and group diversification in the context of Indian business groups. Accounting- and market-based measures of performance of member firms initially decline with group diversification and subsequently increase once group diversification exceeds a certain threshold level. These findings are replicated and supported in the Chilean business group context as well. Khanna & Palepu (2000b), using longitudinal data instead of cross-sectional data, as in the previous study, show that the threshold level increases over time while group benefits unrelated to diversification atrophy over time.

Finally, firm performance differences between group member firms and non-member firms depend on a country's institutional context. Khanna & Rivkin (2001) conducted a cross-country study on business groups. Among the fourteen emerging countries in Asia, Latin America and South Africa, six of the fourteen country have business group affiliates outperformed comparable non-affiliates, three of them showed business group affiliates with lower profits, and the remaining five countries showed no statistically significant difference. They also found that the returns of group affiliates were more similar to one another than are the returns of non-affiliates. These results implied that the impact of business groups on firm performance varies country by country. Groups exist to fill different institutional voids in different economies. Therefore, it is plausible to conclude that the group-performance relationship is contingent on the institutional context.

In summary, the effects of group membership on firm performance remain inconclusive. Empirical findings in the past literature show both positive and negative effects of group membership on firm performance. Also, the relationship between group membership and member firm performance is contingent on country-specific factors such as institutional context, parent firm-specific factors such as group diversification, and member firm-specific factors such as member position in the group. This dissertation attempts to examine these covariates together. At the country level, formal institutions will be examined by looking at how government influences firm's corporate entrepreneurial intensity. At the parent and member firm level, informal institutions will be examined by looking at the group's control mechanisms facilitate the corporate entrepreneurial activities of its member firms. Besides, instead of using accounting-based or financial-based performance measure, this study adopts the capability-based measure of performance, that is, corporate entrepreneurial intensity. Such a capability-based performance measure indicates how business group's member firms engineer economic growth by extending the technological frontier of the economy. After reviewing the current literature on business groups, the conceptual framework and hypotheses will be presented in the next chapter.

CHAPTER THREE

THEORETICAL FRAMEWORK AND HYPOTHESES

Overview of the Conceptual Model

Using an institutional economics perspective, this dissertation develops a model to examine the relationship between institutions and economic growth via their effects on firm's corporate entrepreneurial intensity during institutional transition. As defined by North (1990), institutions are composed of formal rules (rules, laws, constitutions), informal constraints (conventions, norms of behavior, and self-imposed codes of conduct), and the enforcement characteristics of both. In the institutional void situation of transition economies, while government is the agency for enforcing the stable transition from old formal institutions to new formal institutions, the diversified business group is the agency for enforcing new, informal institutions. It is the mixture of the formal institutions, informal institutions, and enforcing characteristics that determines the economic performance of the economy.

During institutional transition, firms are simultaneously facing the transitional effects of the two types of institutions as mentioned above. In regard to formal institutions, government is the single agency to enforce the transition of formal institutions. To facilitate the transition, government will convert the old formal institutions into new ones and develop new formal institutions. Therefore, firms are facing some institutional legacy effects that are inherited from the formal institutions in the pre-transition period. In this study, we will study two institutional legacy effects: administrative heritage and ownership heritage. At the same time, firms are facing effects from the new, formal institutions emerging during the transition period. In this study, we will examine the new economic reform policy as the new formal institution. While administrative heritage and ownership heritage are hypothesized to exert negative effects on firms' corporate entrepreneurial intensity, reform policy is expected to have positive effects on firms' corporate entrepreneurial intensity.

As for informal institutions, diversified business groups emerge as a new informal institution to foster a new way of doing business in transition economies, moving from state to market control of economic institutions. By implementing different types of control mechanisms (strategic controls, financial controls, and cultural controls), a new social norm (in terms of strategic mindsets, financial incentives, and cultural values) is developed among member firms in the business groups. The informal institutions facilitated by the three kinds of control mechanisms are predicted to have positive effects on the corporate entrepreneurial intensity of member firms in a business group.

The overall theoretical model is presented in Figure 1.

Insert Figure 1 About Here

Institutions and Corporate Entrepreneurial Growth

Institutions: Formal and Informal

According to North (1990:3), "institutions are the rules of the game in a society, or more formally, are the humanly devised constraints that structure human interaction. In consequence they structure incentives in human exchange, whether political, social or economic." Institutions are composed of formal rules such as constitutions, laws, and property rights, and informal constraints such as conventions, norms of behavior, and self-imposed codes of conduct. Both formal and informal institutions are important in formulating an institutional matrix for wealth creation of an economy.

Institutions and Economic Growth

Formal Institutions

All kinds of formal institutions are concerned with the organization of the polity (Mantzavinos, 2001). It is the polities significantly shape economic performance because they define and enforce the economic rules of the game (North, 1990). Hence, government is regarded as the strategic agent for organizing the kinds of institutions (e.g. secure property rights and economic institutions) to foster economic growth. Extensive empirical evidence supports the relationship between formal institutions and economic development. For instance, Knack and Keefer (1995) have constructed indexes of the security of property rights as strong predictors of economic growth. Using the same data sources, they explained that institutional environment is the main obstacle for the convergence between the rich and the poor countries (Knack & Keefer, 1997). Other studies have also found that economic growth is fostered by a quality institutional environment proxied by different indicators such as property rights protection, bureaucratic efficiency, absence of corruption (Alesina, 1998), property rights as measured by total credit allocated to private enterprises as a percentage of GDP (Leblang, 1996), and rule of law, risk of expropriation, and risk of repudiation (Olson, Sarna, & Swamy, 2000).

Besides providing the appropriate formal institutions for economic growth, government has to have a credible commitment to maintaining economic growth as well (North, 1993). The maintenance of the rule of law is favorable to economic growth. In particular, polity design is indicative of the credible commitment by the government to foster economic growth. Qian and Weingast (1997) argued that market-preserving federalism is the government's commitment to foster long-run economic development in China.

However, one may observe that some countries differ in their economic performance even though they are having similar formal institutions. So, formal institutions are not a necessary condition for good economic performance of a country. In fact, Weingast (1993) argued that constitutions must be based on a respective constitutional culture in order to survive. This means that institutions or the rule of law are themselves maintained by a set of shared beliefs among citizens who react against the state when the latter attempts to transgress the boundaries defined by those institutions. Hence, a formal institutional framework that is supportive of a wealth-creating economic regime has to be complemented by an appropriate informal institution framework. Next, I will examine how informal institutions will lead to a wealth-creating economy.

Informal Institutions

Economies with the same formal institutional structure but different informal constraints are bound to result in different economic performance, as corroborated by the transformation from the command economy to a market economy in the Eastern European countries. Even the adoption of the basic principles of the United States Constitution by South American countries did not lead to democracy and economic growth (North, 1991). Therefore, appropriate informal institutions are necessary to foster economic growth.

As such, how do informal institutions foster economic growth? First, informal institutions contribute to economic growth directly. Using the World Values Survey, La Porta, Lopez-Silanes, Shleifer, and Vishey (1997) found that trust is associated with per capita GND growth. Using the Chinese Cultural Survey, the Chinese Culture Connection (1987) found that there is a 0.7 correlation between Confucian work dynamism and economic growth. Temple and Johnson (1998) also found that a number of social variables are strong predictors of economic growth. Second, informal institutions foster economic growth through their association with formal institutions. Putnam (1993) states that "social context and history profoundly condition the effectiveness of formal institutions" (p.182). Knack and Keefer (1997) suggest that formal institutional rules are associated with the development of cooperative norms and trust.

In conclusion, either a formal or an informal institution in itself is a necessary, but not sufficient, condition for facilitating economic growth. As proposed by North (1990), it is the creation of a stable polity with complementary norms that is essential to foster good economic performance. However, one may expect that the absence of quality institutions will lead to obstacles for economic growth in transition economies. Interestingly, it is not uncommon to find that transition economies are the most rapid growth countries in the world. Why would this happen? North (1990) examined the relationship between institutions and organizations. He suggested that the institutional framework dictates the kinds of skills and knowledge organizations must have to obtain the maximum payoffs. Therefore, expecting a market-oriented economy after transition, firms in transition economies are motivated to invest in skills and knowledge in order to survive in the future. This suggests a close relationship between institutional change and economic performance of a country. Also, in transition and emerging economies, entrepreneurial growth extends the economic frontier of the country (Leff, 1978). Entrepreneurship activities are conducive to the economic development, and perform the role of wealth creation, of an economy. As such, the logic mentioned above would suggest a relationship between institutions and entrepreneurial growth in transition economies. This will be discussed next.

Institutions and Entrepreneurial Growth in Transition Economies

Corporate entrepreneurship can be defined as a process of product innovation, risk taking, and proactiveness (Colvin & Selvin, 1991; Miller, 1983). It often is defined as including two distinct but related dimensions: innovation and venturing, and strategic renewal (Guth & Ginsberg, 1990). Innovation refers to firm's commitment to creating and introducing new products, production processes, and organizational systems (Colvin & Slevin, 1991; Lumpkin & Dess, 1996). Venturing refers to new business entry by expanding operations and introducing new products in existing or new markets (Block & MacMillan, 1993). Strategic renewal refers to revitalizing the firm's operations by changing the scope of business, competitive approach, or both (Stopford & Baden-Fuller, 1994; Zahra, 1993). Strategic renewal also includes acquiring new capabilities and creatively leveraging them to add shareholder value (Zahra, 1996). In this study, I categorize these different entrepreneurial activities into two main types based on a time horizon criterion. The first type is long-term entrepreneurial growth strategies including product innovations. The second type is short-term entrepreneurial growth strategies pursued through acquisitions and exports.

Corporate entrepreneurship is directly related to corporate diversification. Burgelman (1983) examined the process whereby firms engage in diversification through internal venture development. Such diversification requires new resource combinations to extend the firm's activities into areas unrelated, or marginally related, to its core competence and corresponding opportunity set. The result of such internal venturing may be a change in the pattern of relatedness in the portfolio of the firm's businesses (Ginsberg, 1988).

Additionally, central to the notion of entrepreneurship is the concept of uncertainty (Jones & Butler, 1992). Entrepreneurship is a process by which firms notice opportunities, involves a causal understanding about the inputs, combinations and results expected from the deployment of factors of production, and assembling and coordinating new combinations of resources to extract increased profits from these innovations (Amit, Glosten, & Muller, 1993; Jones & butler, 1992; McGrath, Venkataraman, & MacMillan, 1994). As such, an entrepreneurial firm is said to be have an innovative, risk-taking, and proactive orientation (Colvin & Selvin, 1991). According to the resource-based view, corporate venturing may become a difficult-to-imitate routine, which can sustain the strategic competitiveness of a firm (Barney, 1991).

Because of their value-creating potential, entrepreneurial activities are conducive to economic growth and development of a national economy. Economists and sociologists emphasize the role of entrepreneurship in creating wealth in an economy. In addition to the contribution to economic growth by capital, labor, and technology as proposed by the general equilibrium theory, Schumpeter (1934) suggests that entrepreneurship creates wealth by the process of "creative destruction" to create new demand while destroying existing market structures. Sociologists recognize the importance of interrelationships among different institutional components within the socio-economic system. Sociologists emphasize how entrepreneurship is affected by societal characteristics such as the historical changes of a nation's modernization process as well as the role of the state in economic development (Reynolds, 1991).

In transition and emerging economies, entrepreneurship is likely to be more necessary for output expansion and structural change as compared to more developed countries (Leff, 1978). The political, economic, and social environments are unstable during the transition period in many transition and emerging economies (Hitt, Dacin, Levitas, Arregle, & Borza, 2000). However, these turbulences give rise to many opportunities for entrepreneurial activities, which in turn, help to transform emerging economies in vital and fundamental ways. Therefore, the complexity and uncertainty triggered by environmental turbulence act as a major catalyst for entrepreneurial activity in emerging economies. Peng (2000: 102) concludes that "the more dynamic, hostile, and complex the environment, the higher the level of innovation, risk-taking, and proactivity among the most successful entrepreneurial firms." Entrepreneurship as an outcome of institutional and organizational transformation is also reflected through privatization in most transition and emerging economies (Zahra, Ireland, Gutierrez, & Hitt, 2000). After being privatized, firms are required to engage in entrepreneurial activities, risk taking, and innovation in order to achieve efficiency, improve productivity, and create wealth (Baumol, 1996). As such, entrepreneurial transformation is a key to organization transforming from what is often a state-owned status to one of competing in a market-based economy (Zahra, et al., 2000). As a consequence, entrepreneurship is flourishing in transitional economies of Central and Eastern Europe as well as in the former Soviet Union and East Asia (Peng, 2001; Zahra, et al., 2000; Wright, Hoskisson, Busenitz & Dial, 2000).

Even though entrepreneurship is a vehicle for engineering economic growth in transition and emerging economies, such transformation is more difficult in these countries due to the lack of appropriate institutional and resource environments, and hence, results in different economic outcomes. Newman (2000) suggests that there is an inverted U-shaped relationship between institutional-level change and organizational transformation. She argues that extreme change in the institutional context will inhibit firms' organizational transformation because second-order organizational learning will be inhibited. Successful organizational transformation and entrepreneurial activity in transition and emerging economies requires complementarity institutional transformation that includes a stable and predictable institutional context, and the emergence of a social consensus about new values, norms, and assumptions that underpin economic activity.

Johnson, Smith, and Codling (2000) point out that although most of the institutional changes are taking place in the private sector, governments are getting involved through formal or informal means. The importance of infrastructure in facilitating entrepreneurship should not be ignored. Infrastructure including institutional arrangements to legitimate, regulate, and standardize a new technology; public resource endowments of basic scientific knowledge, financing mechanisms, and a pool of competent labor; as well as proprietary R&D, manufacturing, marketing, and distribution functions by private entrepreneurial firms to commercialize the innovation for profit are all necessary for entrepreneurship (Van de Ven, 1993). In a similar vein, studies also empirically found that environmental and contextual factors have significant impacts on entrepreneurship (Zahra, 1993; Zahra & Covin, 1995).

In summary, given that the idiosyncrasies of an economy's structure can profoundly affect the rules of exchange in its markets (North, 1990), institutional characteristics can have major impacts on the outcomes that transition and emerging economies can achieve through entrepreneurial growth. In this study, China is selected as the context for institutional transition due to its gradual transition from a communist, command economy to a socialist, market economy. Because China's setting is unique in examining the roles of formal and informal institutions in institutional evolution, the focus of my arguments now examines this particular institutional transformation.

Institutional Transition in the Transition Economy of China

Since the inauguration of its Economic Reform in 1979, China has been transitioning from a centrally planned economy to market-based economy. This process took place without democratization, while liberalization proceeded incrementally, and privatization occurred only gradually. So far, the economic reform and transition has brought remarkable success to China. Its GDP per capita quadrupled in the last two decades (Qian, 2000) and its economic growth has been sustained at 8 % every year (Economist, March 10, 2001). China accounts for three quarters of the population and more than one half of the total GDP among all transition economies (Qian, 2000). Furthermore, it is forecasted that China's economic growth will continue to be remarkable in the future. *The Economist* forecasts that if China continues to move towards a market-based economy and sticks to its commitment to the World Trade Organization (WTO), it will grow at 7 % till the year 2005; and by 2020, it would have grown to 10 trillion dollars, making it the size of United States economy today. And there is the prospect of some 40 trillion dollars of new wealth over the next 15-20 years created by the Chinese reforms (The Economist, March 10, 2001). The remarkable economic growth of China is a direct result of its Economic Reform.

The Economic Reform

China's economic reform started off in 1978, after the death of Mao Zedong. The aim of the economic reform was, like other former socialist countries in Eastern Europe and the former Soviet Union, to introduce market institutions into an economy that had been dominated by state planning for several decades (Jefferson, Rawski, & Zheng, 1992). On the whole, the Chinese government's objective is to develop a socialist market economy – a market-based economy with capitalist features and Chinese socialist characteristics simultaneously. Rather than using a "big bang" approach that aimed at transforming to a Western-style market system in a revolutionary way as in Eastern Europe, China's economic reform adopted a "gradualism" approach that followed an evolutionary path, with bottom-up initiatives, experimentation, learning, and adaptation at the core of the reform process. This gradual learning approach in carrying the Economic Reform was exemplified by the analogy used by the previous political leader of China, Deng Xia Ping, as "touching the stones when crossing the river". Naughton (1994) describes China's economic reform is more akin to "growing out of the plan". On the one hand, the gradual reform approach can ensure more stability during the transition; on the other hand, it is also not surprising to find that the gradual and uneven institutional change has resulted in many features of the pre-reform system remaining today (Jefferson & Rawski, 1994).

According to Qian (2000), China's transition journey can be analyzed as a two-stage process. The first stage (1979-1993) is the period of reforming the planned economy. In these first fifteen years, efforts were made to unleash the standard forces of incentives, hard budget constraints, and competition by implementing several mechanisms: reforming government by regional decentralization, entry and expansion of non-state enterprises, financial stability through "financial dualism", and a "dual-track" approach to market liberalization. Regional decentralization refers to the delegation of government authority from the central to local levels of governments. Entry and expansion of non-state enterprise refers to the encouragement of growth in the non-state sector. In China, state sector refers to the state-owned enterprises while non-state sector comprises all other types of firms including collective enterprises and private enterprises in the urban areas as well as private firms, and township and village enterprises (TVEs) which are community public firms in the rural areas. The growth of TVEs is particularly emphasized in the economic reform. Financial stability through "financial dualism" refers to the decline of government fiscal revenues from direct taxation, and the increase in quasi-fiscal revenues from the banking sector by relaxing regulations on the use of cash for transaction and household deposits. Finally, the dual track approach to market liberalization refers to the price liberalization policy in which free market prices are introduced while planned prices and quota are maintained and phased out gradually.

The second stage (1994-present) is the period of replacing the planned economy with a market economy (Qian, 2000). In these years, the aim is to build a rule-based system incorporating international best practice institutions but to proceed in way that is peculiar to China. Several major reforms were introduced during this stage. First, unification of exchange rates was implemented to completely abolish the official prices under the plan track but rely on the single market price system. Second, a major tax and fiscal reform was undertaken to further align the Chinese system with international practices. The central and local governments are responsible for each of their tax revenues. In addition to the tax reform, the "Budget Law" was passed to require local governments to have their budgets balanced. As such, the budgets of local governments were further hardened. Third, a "Central Bank Law" was passed to give the central bank the mandate for monetary policy independent of local governments. The reorganization of the central bank minimized the local government influence on monetary policies and hardened the local governments' budgets. Fourth, downsizing of government bureaucracy was carried out to cut the ties between police, military, judiciary on the one hand and business enterprises on the other hand, so as to reduce corruption and smuggling. Finally, the process of privatization and restructuring of state-owned enterprises, which was delayed in the first stage of the reform, was speeded-up. All these mechanisms transformed China into a more market-based economy.

Two fundamental principles were carried out throughout the Economic Reform to facilitate economic growth. First, there is a gradual change of formal institutions enforced by the government. The core of the formal institutional change is the creation of a market-persevering federalism (Qian & Weingast, 1997) - decentralizing the power from the central government to local governments. Second, informal institutions emerged to substitute for market failures in the transition economy of China. The Chinese government encourages the development of diversified business groups that resemble the Japanese keiretsus and Korean chaebols. Diversified business groups play an important role in instilling and enforcing a new norm of business practices in China, or what is officially called "corporatization" that refers to modernizing the Chinese enterprises into enterprises like corporations in the West. In the following, I will examine the transition of formal and informal institutions in China respectively.

Formal Institutions in the Transition Economy of China

As previously defined, formal institutions refer to the rules, laws, and constitutions that regulate economic exchange in a society (North, 1990). Given the absence of a well-developed market and legal system, government is the second best formal institution and is said to be the substitute for institutional failures in the transition economy (Qian, 2000). Government, as the polity, plays a critical role in shaping the development of formal institutions in the economy (North, 1990). China has adopted a nested, tiered government system with a clear hierarchical ordering from the central government at the top to the local governments comprising provincial, prefectures, counties, township and village government, and street committees underneath. Each tier of government is nested in the upper tier of governments. In China, firms are organized into a nested hierarchy in which different levels of government control firms at different levels of this hierarchy. Figure 2 gives the general picture of the tiered structure of government system in China.

Insert Figure 2 About Here

Under the Economic Reform in China, the government system was reformed by a means known as regional decentralization. Regional decentralization refers to the decentralization of government authority from the central to local levels of governments (Keister, 1998 ; Li, 1995). Under regional decentralization, a major tax and fiscal reform was undertaken to further align the Chinese system with international practices. Under such reform, central and local governments are now responsible for their own tax revenues. In addition to the tax reform, the "Budget Law" was passed to require local governments to balance their budgets. As such, the budgets of local governments were further hardened. Another aspect of regional decentralization is the experimentation with economic development at regional government levels. In China, the government adopted a gradual, bottom-up approach to adjust itself to the increasing market pressures resulted from institutional transition. At the regional level, local governments are encouraged to expand growth outside the state sector by developing non-state enterprises. The experimentation of collective enterprises plus township and village enterprises are examples of such a bottom-up approach of the government increasing its exposure to market pressures. Research has found that fiscal incentives are associated with faster development of non-state enterprises and more reforms in state-owned enterprises (Jin, Qian, & Weingast, 1999). All these reforms under regional decentralization have important implications for China's economic sector of since there is a tighter relationship between polity and economy. Such a tight relationship implies the significant influence of government in shaping the formal institutions developing in China.

The new polity design resulting from regional decentralization in the Economic Reform shows a commitment of the government in fostering wealth creation for the economy. Nonetheless, in addition to the credible commitment, government also has to be an effective agency for enforcing the formal institutions to facilitate economic growth. Two important formal institutions are necessary for good economic development to result from transitioning to a market economy: clearly secured property rights and a set of economic institutions guaranteeing an open market (Hayek, 1973; North and Weingast, 1989). These two formal institutions are still underdeveloped in China. Therefore, although the credible commitment of the polity is there, the exact content of these formal institutions is yet to be completed.

In consequence, the legacy of old formal institutions in the pre-reform era remains and may impose constraints on economic growth. Simultaneously, government is committed to fostering rapid economic growth by carrying out the Economic Reform. Such old and new formal institutions are, therefore, predicted to impose contradictory impacts on firms' strategies and economic growth.

Informal Institutions in the Transition Economy of China

Informal institutions refer to the norms of behavior, conventions, and self-imposed codes of conduct that regulate economic exchanges in a society (North, 1990). Because informal constraints embodied in the customs, traditions, and codes of conduct are much more impervious to deliberate policies, they play a more important role in regulating economic exchange during the transition when formal institutions are being weakened and reestablished (North, 1990). Informal institutions have considerable influence over the behavior of individuals and firms as well as the generation of new formal constraints (Peng & Heath, 1996). Informal institutions are said to substitute for market failures in transition economies.

Past literature has highlighted the importance of informal institutions in facilitating market transactions in the transition economy of China. As pointed by Boisot and Child (1996), instead of following the straight path from bureaucracy to market capitalism, the Chinese path to modernization evolves from a "fiefs" system towards "network capitalism". A fiefs system refers to a clan-based transaction governance system in which information is asymmetrically diffused among members in the clan, while network capitalism is a decentralized clan-based market order that is not based on Western institutions such as property rights but depends very much on trust and longstanding personal relationships. Adopting the unidimensional continuum of markets and hierarchies (Williamson, 1975), the transacting or governance mode of China's network capitalism is somewhere in between these two polar continuum points. In all, networking that is based on informal institutions becomes the dominant logic for firms (Prahalad & Bettis, 1986) in the transition economy of China.

Seeing the success of the Japanese keiretsus and Korean chaebols, the Chinese government claimed that another major principle of the China's Economic Reform is the creation of diversified business groups. In the following, I will describe the Chinese Business Groups in more details.

Formation of Chinese Business Groups

The emergence of China's business groups is a direct result of the Chinese Economic Reform. The Chinese government carried out different privatization and corporatization programs to enhance the financial performance and efficiency of national enterprises. One of the dedicated efforts is to transfer the control of state-owned enterprises from the government to newly emerging business groups or known as *qiye jituan* (Keister, 1998). Because of the success of the Japanese keiretsus and the Korean chaebols, the Chinese policy makers aimed to replicate their neighbor's success, and permit firms to acquire ownership rights in each other and to reduce their roles to that of a shareholder with limited liability and voting authority in the mid-1980s (cf. Keister, 2000; Li, 1995). In the inaugural year of the Economic Reform, the Communist Party Central Committee declared that the state would actively support the formation of business groups. Later, official documents including the "Provisional Regulations Regarding the Promotion of Economic Alliances in 1980, the "State Council Related to the Further Promotion for Lateral Economic Alliances" in 1986, and "A Few Ideas Regarding the Establishment and Development of Business Groups" in 1987, were released in which the state declared that the Chinese government regarded business groups as a means of achieving broad-based sustainable economic development and growth (Keister, 2000). Also, 1997 was a critical year in the development of Chinese business groups. The State Council released an official document No. 15, in which the President of China, Jiang Jiemin, urged that the Chinese government concentrate its efforts in strategically restructuring the existing state-owned enterprises into diversified business groups that are based on cross-ownership, cross-regions, cross-industries, and cross-national foundations (China Economic Review, 1998). This symbolized the central role played by business groups in the Chinese economy.

Specific goals that it was believed business groups could accomplish included: cost efficiency through economies of scale, better coordination of management of individual enterprises, decrease in the reliance of firms on the state to cover operating deficits, improved firm performance, increased total output, improved relations among firms and scientific research institution, improved research and development in order to decrease reliance on foreign technology, enhanced international competitiveness, and the protection of firms from competition (Li, 1995).

By 1999, there were 2,767 business groups in China with total assets of over US$10 trillion which contribute close to 60 percent of the nation's industrial output (China Economic Yearbook, 2000; China Statistical Yearbook, 2000). Overall, the average annual growth rate of the Chinese business groups in terms of sales was 13.55 % in 1999. Business groups are providing enormous economic growth in various industries as well. Among the industries, the annual sales growth is 20.8 % in the refinery sector, 12.33 % in the manufacturing sector, 47.05 % in the telecommunication sector, and 3.65 % in the construction sector, respectively (China Economic Yearbook, 2000). Moreover, Chinese business groups also achieved remarkable global performance. In 1999, for the first time, five of the Chinese business groups were ranked among the Fortune 500 global companies. And within only fourteen years from the beginning of the company, the Lianxiang Group was ranked among the top ten personal computers manufacturers in the world in 1997 (China Economic Yearbook, 1998, 2000). These statistics indicate the significant economic impact of Chinese business groups both in the domestic and global economy.

Types of Chinese Business Groups

There are two types of business groups in China. The first type of Chinese business groups resembles the Taiwanese *guanxi qiye*. The major characteristic of this type of business groups is that they are composed of small private firms with family ties or other forms of social connections, more predominant in low-tech and light industries where there is a high proportion of private and start-up firms, located more in the marketized regions, relations among member firms tend to be informal, and group management tend to be loose (Keister, 2000). The second type consists of large-scale enterprise groups that resemble the Japanese keiretsus and the Korean chaebols. This dissertation focuses on the second type of Chinese business groups because it is the more prominent form of business groups in China. These large Chinese business groups are more geographically diverse and are formed primarily in the manufacturing sector and the "central industries" including the automotive, steel, petroleum, power, transportation, and high-tech industries.

Group Structure

Typically, the structure of a Chinese business group consists of three components. At the center of the group is the core firm or parent firm that is usually a large industrial or commercial enterprise. The second component is the member firms that are either vertically or horizontally related to the parent firm. Similar to the keiretsus or the chaebols, business groups in China are infused with elaborate inter-firm relations. According to Li (1995), member firms are bounded together by director ties (interlocking directorates), financial ties (cross-shareholdings and debt relations), commercial or product-based ties (long-term supplier relations, joint production and R&D), and personnel ties (personnel exchange, joint training). The third component involves other member firms that are not directly involved in the production but vital to the functioning of the group. These firms act like specialized functional groups that might be part of staff groups in a western diversified company to fulfill specific functional needs of all group member firms. In most cases, there is a finance company, a research and development company, an administrative company, and occasionally an import-export company, a marketing company, and an education or training institute (Keister, 2000). The basic structure of a Chinese business group is a three-tiered structure, with the parent firm at the top, the production member firms and non-production member firms in the middle, and their affiliated subsidiaries at the bottom. Figure 3 gives an example of the structure of a typical Chinese business group.

Insert Figure 3 About Here

Advantages Given By Business Groups

In general, being a member of a diversified business group in China has three major advantages.

The first advantage that firms can gain from business groups is the reduction of transaction costs. In China, given a lack of clear property rights and legal regime, transaction costs incurred by internalization or acquisition tend to be high because both strategic options involve bureaucratic costs and/or transfer of ownership. In contrast, a group-based strategy, although it also incurs high coordination costs to establish and coordinate the elaborate web of relations (Boisot & Child, 1996; Jarillo, 1988; Khanna & Palepu, 2000b), nonetheless, the costs of networking are lower than the costs of otherwise being unable to complete the necessary transactions through either the market or the hierarchy (Peng & Heath, 1996). And the costs per transaction can be reduced when the scale, scope, and specificity of transactions among members within the business groups increases. In addition, the threat of opportunism is limited through relational contracting, thus saving monitoring costs (Chang & Choi, 1988).

Second, business groups are suited to handling the uncertainty and complexity in the China's institutional environment (Boisot & Child, 1996). Two types of uncertainties exist during the reformation of the China economy: the first type is economic uncertainty that arises from the tightening of fiscal constraints in the transition away from the planned economy, and the second type is administrative uncertainty faced by the firms that are located at the highest level of government administration and assume the greatest amount of responsibilities to produce the transition (Guthrie, 1997). Sustained by reciprocal, preferential, and mutually supportive trust-based relationships (Peng & Heath, 1996), business groups provide greater capacities for generating and exchanging information, thus offering a cushion against the possibility of failure that is concomitant with uncertainty.

Third, the most important advantage firms can gain from joining business groups is the economic strength resulting from the collaboration between the state and the groups. These "patronage networks" (Boisot & Child, 1996) are built upon personal ties between firms and officials. While firms can benefit from non-tradable political resources and protection, governments benefit from the tax revenues for local economic growth. By spanning the boundary between the public and private sectors (Nee, 1992), the quasi-market networks become a peculiar economic strength in the transition economy of China.

In summary, because of their superior adaptive capacity, hybrid organizational forms flourish during the period of rapid institutional change and become a requirement for facilitating the planned economic transition (Nee, 1992; Stark, 1992). Diversified business groups are regarded as the engine for economic growth and they act as an agency for enforcing a new kind of social norms in China.

HYPOTHESES

The context of this study is the member firms of a diversified business group in the transition economy of China. During institutional transition, member firms are facing forces from both the transitioning formal and informal institutions. In this study, I focus the main *formal* institutional forces as those from the transitional government that is conceptualized as the agency for enforcing the transition of formal institutions in the economy. As for *informal* institutions, I focus on the forces from the diversified business group that is conceptualized as the agency for enforcing new norms of business practices during transition. Member firms in a diversified business group are under dual influence from both formal and informal institutions. Government, with its heritage effects carried over from the previous planned economy period and reforming effects in the institutional transition period, are hypothesized to have both positive and negative relationships with firm corporate entrepreneurial intensity. Diversified business groups, which serve like a multidivisional form to maximize the strategic benefits of their member firms via the group control mechanisms, are hypothesized to positively influence corporate entrepreneurial intensity. The proposed empirical model is summarized in Figure 4.

Insert Figure 4 About Here

I. Formal Institutions and Economic Growth: Government Influence and Corporate Entrepreneurial Intensity of Member Firms in a Diversified Business Group

Institutional transition is a process of incremental changes, which "consists of marginal adjustments to the complex rules, norms, and enforcement that constitute the institutional framework" (North, 1990: 83). During institutional transition, one set of beliefs and practices will be weakened and disappear and is likely to be associated with the arrival of new beliefs and practices (Scott, 2001). So, there will be a period of time in which both the old and new institutions co-exist. Such coexistence of old and new institutions is likely to give rise to considerable upheaval, chaos, and increased transaction costs (Meyer & Rowan, 1997; North, 1990). In transition economy, the coexistence of old and new institutions will have different impacts on the progress of economic growth. In this study, I will examine how the old institutions new institutions trigger conflicting effects on member firms' corporate entrepreneurial intensity in the diversified business groups in the transition economy of China. Past research suggests two main dimensions of corporate entrepreneurship: innovation and strategic renewal (Guth & Ginsberg, 1990). Innovation refers to the firm's commitment to creating and introducing new products, production processes, and organizational systems (Covin & Slevin, 1991; Lumpkin & Dess, 1996). Strategic renewal refers to revitalizing the firm's operations and building or acquiring capabilities (Zahra, 1993, 1996). This study focuses on these two dimensions of corporate entrepreneurship in the context of transition economies. Specifically to the context of transition economies where the product and technological markets are still underdeveloped, corporate entrepreneurial intensity is defined as the extent to which firms engage in innovation and strategic renewals that are exemplified by internal capabilities building including product capabilities building, technological capabilities building, and marketing capabilities building.

Government Heritage From Old Formal Institutions

A difference between Chinese business groups and other Asian counterparts is that social relations, while important, played a minor role in group formation (Keister, 1998). Instead, government is heavily involved in the formation and development of diversified business groups in China. In this study, I focus on two types of government heritage: administrative heritage and ownership heritage.

Administrative Heritage

Firms are as captives of their past (Barlett & Ghoshal, 1989). According to Barlett and Ghoshal, administrative heritage refers to an organization's way of doing things, which is shaped by its founder and leader, norms, values, and behaviors of managers, and organizational history (Barlett & Ghoshal, 1989). Because administrative heritage is unique and ingrained in a firm, changes in competitive strategy or in formal organizational structure is difficult unless it is accompanied by matching changes in the firms' values and management processes. Therefore, any change must begin with an understanding of the firm's administrative heritage. In the context of Chinese business groups, government exerts great administrative heritage effects on member firms in two major ways.

First, an administrative heritage force unique to the member firms of a Chinese business group is firm founding. Firm founding casts a long shadow on a firm's adaptive abilities and has long-term influence on a firm's structure and strategy (Stinchombe, 1965). Stinchcombe posited that there is a close relationship between social structure and firm founding. The economic and technical conditions determine the appropriate organization form for a given organizational purpose and postulate that certain kinds of organizations could not be invented before the social structure was appropriate to them. Take the case of automobile industry as an example, Stinchcombe (1965) argued that the automobile industry could not be invented until organizational forms appropriate to large-scale factories and nationwide distribution systems were in place. The same logic applies to the transition economy of China.

The founding modes of Chinese business groups have reflected the transitioning nature of institutional change in China. Directing towards a market economy, some business groups are formed through the market means: greenfield investment or mergers and acquisitions. For example, the China's First Motor Group was founded with 25 mergers and acquisitions 1992. The group now has 36 factories, 11 wholly-owned subsidiaries, 12 subsidiaries with majority shares, 17 joint ventures, and 246 affiliate firms (China Industrial Development Report, 1998).

However, most of the Chinese business groups were formed via the centrally planned means. That is, they were founded by the government directly or indirectly through administrative restructuring. As mentioned above, the institutional support environment and firm founding is closely related. The administrative restructuring of the Chinese business groups is due to a lack of well-established formal institutions such as capital, labor, and product and technology markets in China. One way of administrative restructuring by the government is that the parent firm is established first and member firms are subsequently added to the business group. Alternatively, the member firms are bundled together into a business group through administrative restructuring and the parent firms are established later.

The former administrative restructuring is the more typical way of forming business groups in China and it is undertaken in two ways. One way is through a contracting system in which diversified business groups were formed through the authorization of state-owned enterprise operation rights granted by the government (China Economic Yearbook, 1999; Li, 1995). Under this contracting system, the state-owned enterprise management bureau (a centralized bureau that oversees all state-owned enterprises) reorganized those state-owned enterprises that used to have close relationships with each other and granted the core state-owned enterprise the right to operate and manage all these state-owned enterprises. The core state-owned enterprise becomes the parent firm of the business group and the other inter-related state-owned enterprises become the member firms.

Another way to establish a business group through administrative means is transferring an existing industrial bureau into a business group system. Through this administrative restructuring, all the firms under the industrial bureaus become member firms of a specific business group. An example is the Shougang Enterprise Group in the steel sector was merged with 13 industrial ministries and became one of the largest business groups in China. And recently, the Chinese government also restructured the largest ten ministries into five business groups (China Economic Yearbook (2000).

The third way is through the approval of the merger of large firms into business groups in particular industrial sectors by the government. According to the China Economic Yearbook (2000), the Chinese government approved the formation of several giant business groups by merging the top two in the oil and chemical industry, the big three in the metal industry, and the top four in the telecommunication industry. Large-scale administrative restructuring in the air and transportation sector is in progress as well.

Notwithstanding the formation approach, whether by government administrative or through the market-based means, the groups are required to get approval by and register with the government bureau most closely related to it. The process of approval and registration is regarded as a vehicle by which the state continues to retain control over the firms by exerting influence on matters of certification; for instance, which firms join which groups and where the groups acquire raw materials (Keister, 2000; Li, 1995). From this, it can be concluded that member firms of business groups are under great influence from the government especially during the founding stage of their historical context.

The administrative heritage forces via firm founding may indicate that the redistributive mindset of the government as the founder exist while the corporate entrepreneurial mindset is lacking. After combining member firms through an administrative approach, excessive and unrelated resources cannot be sold off in the external markets. This leads to efficiency problems. For instance, the core firm of the Northeast Electricity Group has 100,000 employees but only a quarter of them are sufficient for efficient operation (China Economic Yearbook, 1996).

Another example is that when facing the harder budget constraints, some local governments wanted to lessen their burden and force the business groups to absorb the less performing state owned enterprises in their justifications (China Economic Yearbook, 2000). This led to duplication of resources and high debt level in some of the business groups. The debt-to-asset ratio of the Heavy Motor Group and the Oriental Group were 85% and 89%, respectively (China Economic Yearbook, 1996). So, the high debt burden makes firms less likely to undertake expensive long-term corporate entrepreneurial activities such as research and development. This indicates that the socialist objective of providing job opportunities still predominates, making organizational change to be more market-oriented and entrepreneurial difficult. As such, it is predicted that government influence in firm founding will lead to lower corporate entrepreneurial intensity in member firms.

Hypothesis 1: **Government influence via firm founding is negatively related to the corporate entrepreneurial intensity of member firms in a business group.**

Second, government influences member firms of diversified business groups by means of its influence over the selection of the CEO and board of directors. As previously mentioned, most of the member firms are transferred from former state-owned enterprises and industrial bureaus with a heritage of strong government influence. Therefore, the employees of the previous state-owned enterprises and the government officials of the previous industrial bureaus would remain in the business groups. It is not uncommon to find that the CEOs and board of directors of the member firms are usually either the former government officials working in the industrial bureaus or are selected under great government influence. Sometimes, the CEO is even appointed by the government (China Economic Yearbook, 1996). Thus, although the non-separation between government administration and corporatization in the pre-reform era was achieved in a legal sense, the corporate mindset is still absent in the existing pool of managers and board of directors. The CEO and board of directors act like a government ministry as they were in the pre-reform era, and move forward using their stewardship to fulfill the social objectives and near-term interests of government. Also, due to the different jurisdictions these government officials and managers belonged to previously, they tend to perceive that they should focus on the interests of their corresponding level of governments instead of on the interests of the business group. Furthermore, former state-owned enterprises are often under softer budget constraints than other business groups. As such, managers would not have much incentive to utilize resources efficiently and engage in capability building corporate entrepreneurial activities. Therefore, they are lacking the entrepreneurial mindset to pursue corporate entrepreneurial intensive strategies.

In conclusion, the pre-reform way of doing things is deeply embedded in the member firms via the effects of founding and government influence on the selection of CEO and board of directors. As a result, the administrative heritage in member firms will have a negative impact on corporate entrepreneurial tendencies.

Hypothesis 2: Government influence via the selection of CEO and board members is negatively related to the corporate entrepreneurial intensity of member firms in a business group.

Ownership Heritage

Another type of government heritage that remains in the member firms of business groups is ownership heritage. Ownership heritage refers to the heritage effects resulting from having ownership stakes in a firm. In a transition economy where there is a lack of market for property rights, it is difficult to diversify ownership when former state-owned enterprises are transferred into member firms in a business group. Government still retains their ownership stakes in the firms because there is little infusion of new capital. Although some argue that government ownership can be a more effective than private ownership in achieving government goals when a contract is incomplete (Shleifer & Vishny, 1994; Che & Qian, 1998), Jefferson (1998: 430) suggests that "in the absence of a well-defined property rights market, privatization may result in the transfer of public assets to private owners who do not use them in a substantially more efficient way than they had been used under state ownership".

From the institutional economics perspective, government ownership is more efficient than private ownership during economic transition where the markets have not been fully developed. First, government-owned enterprises are favored in credit rationing by the government when the capital market is still imperfect (Che & Qian, 1998). Second, government-owned enterprises are vehicles for local governments to cash in the value of land under their control in the absence of asset markets (Naughton, 1994). Third, government-owned enterprises can use their connections with the government to smooth transactions when the product market is undeveloped (Nee, 1992). Lastly, government-owned enterprises are under better protection in the absence of secure property rights (Che & Qian, 1998; Li, 1996). In consequence, government ownership stakes are usually retained in the transformed state-owned enterprises for both political and economic reasons.

However, ownership heritage in the member firms of business groups will inhibit the entrepreneurial growth of the firms. Jefferson (1998) argued that the properties of non-excludability and non-diminishability of a public good (Cornes & Sandler, 1986), inherent in state-owned enterprises, create externalities that will impair the efficiency of the economy. This is because government-owned enterprises are subject to the opportunistic behaviors of employees, managers, and government officials in the absence of an effective monitoring system (Jefferson, 1998). This results in overconsumption, in which everyone is extracting value from the firm in excess of what he or she puts in. For instance, government treats the state-owned enterprises as "cash cows" for financing public infrastructure and social welfare. Government as an owner is less profit-driven, and hence, is less vigilant in its monitoring role. For the economy as a whole, resources are diverted and efficiency is impaired. With government ownership retained in the member firms of business groups, such efficiency problems have not been solved since the Economic Reform (Jefferson, 1998).

Past literature has found a negative relationship between government ownership and market-to-book value, an indicator of shareholder value and firm growth (Thomsen & Pedersen, 2000). One explanation is that government tends to place more emphasis on nonprofit goals such as the provisions of social welfare and employment opportunities, and is willing to tradeoff these goals against shareholder value and profit maximization (Boycko, Shleifer, & Vishny, 1995). Empirical evidence did support the positive relationship between government ownership in local enterprises and level of employment in the corresponding government jurisdiction (Che & Qian, 1998). Also, in a study of privatized firms across 15 countries, Andrews and Dowling (1998) found that post-privatization gains did not materialize for firms where government held significant shares after the privatization process. This further reinforces the notion that government is inefficient in monitoring performance outcomes associated with their investments and government's ownership stakes will not facilitate the long-term entrepreneurial growth of firms.

Hypothesis 3: Inherited government influence via government ownership is negatively related to the corporate entrepreneurial intensity of member firms in a business group.

Emerging new formal institutions

Government reform policy

With the old formal institutions phasing out gradually, the new formal institutions emerge. New formal institutions are being introduced into the transition economy of China since the inauguration of the Economic Reform in 1979. Government has introduced large-scale reform policy that exerts positive influence on corporate entrepreneurial intensity in the transition period, moving towards a market-based economy.

One of the major principles of the Economic Reform is regional decentralization. Through regional decentralization, fiscal incentives were given to local governments for more local economic development. The formal budgetary revenue system, the "unified revenue collection and unified spending" system, was replaced by the "fiscal contracting system" (Qian, 2000). Under this new fiscal policy, each level of the government turns over a contractually specified amount of the tax revenues collected from enterprise under its jurisdiction to the next higher level of government and can keep the residual. Such contracts allow the local governments to retain all the local revenues, thus becoming the residual claimants in the flow of tax revenues. In addition, local governments are granted "extra-budgetary funds" and "off-budget funds" for local economic development.

Research has found that fiscal incentives are associated with faster development of non-state enterprises and more reform in state-owned enterprises (Jin, Qian, & Weingast, 1999). As such, the fiscal contracting system has provided local governments with a market-oriented incentive to foster economic growth. At the same time, local governments are more exposed to market institutions and market competition (Nee, 1992) and they act as "market-oriented agents" who compete fiercely on regional, national, and international product markets (Walder, 1995). Hence, to enhance the strategic competitiveness of firms in the domestic inter-regional competition and international market, local governments are motivated to facilitate entrepreneurial growth of firms under their jurisdictions.

In particular, a clear strategic mission laid out in the Economic Reform is that diversified business groups are seen as a means of achieving broad-based sustainable economic development and growth (Keister, 2000). Specific goals that were set for business groups to accomplish included: cost efficiency through economies of scale, better coordination of management of individual enterprises, decrease in the reliance of firms on the state to cover operating deficits, improved firm performance, increased total output, improved research and development in order to decrease reliance on foreign technology, enhanced international competitiveness, and reduced protection of firms from competition (Li, 1995). To facilitate the achievement of these goals, governments at all levels have formulated different policies to provide incentives for the development of diversified business groups in their jurisdictions. For instance, the Shanghai government gave preferential treatments to business groups and their member firms. Such treatments include tax refunds, preferential permission for company listings in the stock market, relocation of excess employees, and provision of loans (China Economic Yearbook, 1998). These government policies helped Shanghai to maintain an economic growth rate of 2 to 3 percent higher than the national economic growth rate in the last five years (China Economic Yearbook, 1998). As such, the government is determined to foster long-term, entrepreneurial growth of member firms in diversified business groups.

With the preferential treatments through government reform policies, member firms gain access to the resource endowments from the corresponding government jurisdiction in addition to the business group's resource endowments. As a result, they end up accumulating substantial slack resources. Organization theory suggests that the purpose of slack is to allow firms to forgo short-term gains in favor of long-term outcomes (Cyert & March, 1963; Sharfman, Wolf, Chase, & Tansik, 1988). Consequently, corporate entrepreneurial intensity is enhanced.

In all, to fulfill the strategic mission of the Economic Reform, sustain their competitiveness and growth in the long run, and with the backup of abundant resources, firms under the emerging government reform policy are more concerned about building firm-specific capabilities. As such, firms are more inclined to pursue corporate entrepreneurial activities under the influence of the reform-oriented government policies.

<u>Hypothesis 4</u>: **Government influence via reform policy is positively related to the corporate entrepreneurial intensity of member firms in a business group.**

II. Informal Institutions and Economic Growth: Control Mechanisms and Corporate Entrepreneurial Intensity of Member firms in a Diversified Business Group

Informal institutions, embodied in the customs, traditions, and codes of conduct, play an important role in regulating economic exchange shape the behaviors of firms and individuals during transition when formal institutions are being weakened and reestablished (North, 1990). During institutional transitions, diversified business groups with these informal institution elements fill the institutional voids and facilitate firms' entrepreneurial growth in emerging economies (Khanna & Palepu, 2000b; Leff, 1978). From this perspective, entrepreneurship is a context-dependent process through which firms create wealth by building a unique portfolio of resources to exploit marketplace opportunities (Ireland, Hitt, Camp, & Sexton, 2000). This indicates that gaining access to a variety of resources and knowing how to leverage them creatively are two core actions for the entrepreneurial growth of a firm. However, in a transition economy like China, the lack of an adequate legal framework and a stable political structure has resulted in the underdevelopment of strategic factor markets (Barney, 1986), which leads to difficulties for creating the resources need by firms to conduct economic activity. Diversified business groups emerge as the substitutes for the strategic factor markets and become the seedbed for corporate entrepreneurship in transition economies. In the following, I will discuss how the different types of control mechanisms of a diversified business group facilitate incentives for entrepreneurial growth of their member firms in the transition economy of China.

Business Group's Control Mechanisms

Diversified business groups are analogous to multidivisional structures with the parent firm as the head office and member firms as semi-autonomous divisional units. In the product diversification and associate organizational control literature, two main types of control mechanisms are mentioned (Hill & Hoskisson, 1987; Hoskisson & Hitt, 1988). The first type is strategic control which refers to the use of long-term, strategically relevant, subjective and sometimes intuitive criteria for the evaluation of subsidiary managers' performance (Gupta, 1987; Hoskisson & Hitt, 1988). As such, strategic controls require substantial information exchange between headquarters and divisions, and knowledge about each business operation. It is also proposed that strategic control mechanisms are best in realizing synergistic economies that arise from the benefits of sharing resources (Hill & Hoskisson, 1987). The second type is financial control that entails objective criteria such as return on investment in the evaluation of subsidiary managers' performance (Hoskisson & Hitt, 1988). Financial control mechanisms are best in realizing financial economies that result from risk pooling (Hill & Hoskisson, 1987).

In additional to strategic controls and financial controls, organizational culture can also be used as a mechanism to shape mangers' behaviors. This type of control is known as clan control (Ouchi, 1980) or cultural control in this study. The use of cultural control is prevalent in the business group context as well as the collectivistic Chinese national context. The use of different types of control mechanisms is expected to generate different types of economies that facilitate incentives for corporate entrepreneurial growth of member firms in a diversified business group.

Cultural Controls

A typical control mechanism used in firms in transition economies is cultural control. According to Ouchi (1980), bureaucracies are more efficient than relying on market transactions when markets fail. However, bureaucracies can fail when the ambiguity of performance evaluation becomes significantly greater than that which brings about market failures. In this situation, cultural controls emphasizing common values and beliefs come into play, and bureaucracies can increase a sense of affiliation with the firm and enhance goal congruence. Business groups are characterized by high levels of performance ambiguity, as member firms contribute to the groups differently, and high level of goal congruence, as both the parents and member firms aim to maximize the group's benefits. As such, cultural controls fit the context of business groups and it is the least costly governance mechanism in shaping member firm behaviors from the parent firm's perspective.

From the member firms' perspective, they will be shaped to maximize cooperative opportunities for the group's benefits as a whole on the up side and minimize opportunistic behaviors on the downside when they are governed by cultural controls. Most importantly, cultural control is a mechanism that helps realize the benefits of social capital to the fullest, which is crucial for economic transactions in transition economies. Social capital refers to the intangible relational resources that support the success of economic transactions in a society (Coleman, 1990; Fukuyama, 1995; Knack & Keefer, 1997; Putnam, 1993). It is embedded in interpersonal relationships, authority relations, and consensual allocations of rights that establish norms (Coleman, 1990). Trust and cooperative norms are the primary manifestations of social capital (Coleman, 1990; Putnam, 1993).

Social capital is crucial for member firms' corporate entrepreneurial growth. First, member firms face a liability of newness and lack of legitimacy in the sense that there is no heritage of social capital in the form of interpersonal or interorganizational trust that provide strong historical institutional linkages between them and the stakeholders including government, financial institutions, suppliers, and customers. Member firms can overcome this liability by joining a business group as they can be sheltered under the umbrella of a parent firm that already possesses prestige and legitimacy in society. In particular, a business group can be viewed as a club in which members have access to and utilize the group's resources, similar to club goods, at no additional cost once they join the group (Cornes & Sandler, 1986). In this vein, social capital is created as a by-product of a business group (Olson, 1965) and provides efficient access to and utilization of other economic resources (Granovetter, 1995; Putnam, 1993).

Second, the three components of social capital - obligations and trust, information channels, and norms and effective sanctions (Coleman, 1988) - can help facilitate corporate entrepreneurial growth (Chung & Gibbons, 1997). Obligation and trust are informal institutions that substitute for the formal institutions such as property rights and ownership rights, which are not adequately developed, in transition economies. Thus, they can reduce ambiguity and enhance knowledge creation and diffusion among group members. Also, the trusting relationships established and maintained among member firms can reduce ambiguity and enhance knowledge creation and diffusion in the business group. This can facilitate individual member's pursuit of internal innovations. Information channels, such as director interlocks, allow information about technological advances (Keister, 1998), market opportunities and collusive information among competitors (Haunschild, 1993), innovative strategies (Powell, 1990), and so on, to pass among member firms in the group. As such, knowledge creation is facilitated and corporate entrepreneurial intensity is enhanced. Finally, norms and sanctions effectively mitigate the risks of opportunistic behavior and foster a sense of cooperation, which is conducive to entrepreneurial experimentation. All member firms abide by the norms produced by cultural controls. As such, member firms are expected to maintain good reputations, develop trusting relationships with other members, participate in social activities, and support other member firms even at the sacrifice of one's own benefits. In consequence, cultural control is an effective governance mechanism in fostering entrepreneurial growth of member firms in a diversified business group.

Empirical findings support the notion that networks of social interactions created by entrepreneurs feed on their own successes in emerging economies (Neace, 1999). In another study, it is found that communities and societies with high levels of social capital and trust are much more likely to be open, fluid, creative, effective, and efficient in economic community endeavor (Putnam, 1995). Hence, the cultural control mechanism implemented in a business group will help member firms realize the economies of social capital that are crucial for corporate entrepreneurial growth.

Based on the above arguments and empirical support, social capital realized by implementing cultural controls not only prevents the downside costs and risks of conducting corporate entrepreneurial activities by substituting the external capital markets and mitigating opportunistic behaviors of member firms. At the same time, cultural controls increases the upside gains of social capital for member firms to engage in corporate entrepreneurial activities by cultivating a norm of cooperativeness and trust.

Hypothesis 5: **A cultural control emphasis among member firms in a business group is positively related to member firm's corporate entrepreneurial intensity.**

Strategic Controls

The primary reason for group membership is the scope economies provided by a diversified business group in China (Keister, 1998). Strategic controls aim at maximizing the scope economies for member firms in a business group. Two factors are emphasized when implementing strategic controls: knowledge sharing and long-term orientation. Both factors are crucial for achieving sustainable competitive advantages for the member firms and the business group.

Information or knowledge sharing is necessary for corporate entrepreneurial growth. In the absence of well-functioned factor market and product market in the transition economies, it would be more costly to acquire information in the market than in the hierarchy. Diversified business groups entail an internal market for knowledge sharing. A typical knowledge sharing mechanism in diversified business groups is interlocking directorates. Through interlocking directorates, member firms can get new information about technological innovations, management know-how, and even supply information. Keister (1998) found that interlocking directorates are positively related to firm performance and productivity. The more extensive the interlocks, the better will be firm performance and productivity. Strategic controls emphasize the exchange of information and knowledge within the business groups, and so, corporate entrepreneurial activities such as product innovations and research and development will be facilitated.

Second, strategic controls encourage a more long-term strategic managerial mindset. Compared to the developed countries, the labor mobility in China is minimal because job allocations are often assigned by government agencies. When member firms are partially or fully privatized by the state-owned enterprises in the Chinese business groups, managers likely lack an entrepreneurial strategic mind-set. Business groups act as a vehicle for mobilizing human capital and provide an internal labor market for accumulating human resources for strategic entrepreneurship. Following the model of Japanese keiretsus and Korean chaebols, education institutes are set up in most business groups to provide advanced training and education for employees of member firms (Keister, 1998). More importantly, top managers in business groups are aggressive "empire builders" who have large propensity for group expansionism. (Leff, 1978). Because of the deficiencies of formal capital market in the transition economies, managers lack objective financial criteria for evaluating their performance. Instead, they are evaluated by subjective means such as self-assessment or comparison with rival groups (Leff, 1978). As such, the use of subjective strategic controls shift top managers to become more risk-taking and proactive, and motivates managers to engage in more entrepreneurial activities.

By implementing strategic controls, managers are motivated to focus on long-term firm performance. Use of strategic controls can help establish a norm of risk sharing among member firms in a business group (Hill & Hoskisson, 1987). In this way, firms are more willing to undertake risky projects as they are evaluated on commitment to strategic goals rather than financial outcomes. So, strategic controls can enhance managerial commitment to innovations (Hitt, Hoskisson, & Ireland, 1990). The emphasis on building firms' capabilities through long-term entrepreneurial growth is particularly important to enhance the strategic competitiveness of firms in the transition economies in the global arena.

Hypothesis 6: **A strategic control emphasis among member firms in a business group is positively related to member firm's corporate entrepreneurial intensity.**

Financial Controls

Financial controls mechanisms can provide financial economies, thus facilitating corporate entrepreneurial activities, for member firms in a business group. There are severe constraints in the capital markets of a transition economy. In the transition economy of China, liberalization creates the opportunities for market exchange, but within a context where there is no established history of adjudicating contract law or system to monitor and enforce the fulfillment of market contracts.

Although liberalization creates the opportunities for investment in private firms, it does so within a context where there is no established bankruptcy procedures designed to mediate between multiple stakeholders in the case of failure. Furthermore, market change creates the opportunities for more effective corporate governance by private actors and the market, but within a context with no established accounting or auditing mechanisms to provide credible information to new owners as well as no effective board of director system to monitor managers (Hoskisson, et al. 2000; Spicer, et al., 2000). Together with government control of the overall banking sector and significant restrictions on foreign and private banks to operate, China's capital market remains rudimentary (Keister, 1998).

Facing all these constraints, business groups substitute for more developed financial markets and allow member firms to obtain otherwise scare financial resources. In general, a business group provides three sources of financial capital to its members. First, the multidivisional structure of a business group provides an internal capital market emphasizing financial economies where redistribution of financial capital to the highest return uses within the group is likely (Hill & Hoskisson, 1987). Also, insider lending among members within a business group substitute for the formal capital market so that firms can get access to otherwise scarce capital where markets are inadequate at allocating funds (Goto, 1982).

Second, members can get access to additional financing through the group's finance company, a specialized firm that collects and redistributes funds within the group as well as obtains funds through state banks and external sources on behalf of member firms (Keister, 1998). Besides providing loans to member firms for growth and expansion, the finance companies also enable firms to meet production, research and development, and marketing needs that might have gone unmet without access to capital (Li, 1995). By the mid-1990s, all of the largest business groups in China had group finance companies (Keister, 2000).

Third, business groups acts as an as an agent for the group to attract inward foreign investment (Guillén, 2000). By joining the group, members can get access to international capital markets. In all, business groups in China have fulfilled the most pressing need for their member firms: the need for credit. Especially in the transition economy of China where most of the firms in the business groups are state-owned enterprises before the reform, the conversion of state-owned enterprises into market-oriented firms (Nee, 1992) can be regarded as a privatization buyout which can be an attraction to receive government subsidy for R&D expenditures to foster entrepreneurial pursuits and strategic innovations (Filatotchev, Wright, Buck, & Zhukov, 1999; Wright, Hoskisson, Busenitz, & Dial, 2000).

Past literature suggests that an emphasis on financial controls may reduce long-term investments (Hitt, Hoskisson, Johnson, & Moesel, 1996). However, such findings may not be applicable in the context of transition economies where it is very costly to attain financial resources in the market and the labor market does not allow labor mobility. The redistributive effects of financial economies realized in a business group provides financial resources for corporate entrepreneurial growth to member firms who are unable to get access to financial resources in the external capital market. With limited mobility in the labor market, the short-term opportunistic behavior due to financial controls will be minimized. In fact, financial controls may provide incentives for managers to improve production efficiency, which requires investments in corporate entrepreneurship. Hence, it is expected that financial controls may enhance corporate entrepreneurial intensity of member firms in a diversified business group.

<u>Hypothesis 7</u>: **A financial control emphasis among member firms in a business group is positively related to member firm's corporate entrepreneurial intensity.**

In summary, during institutional transition, member firms in a business group are under dual influence from both formal and informal institutions. For formal institutions, it is predicted that administrative heritage effects via firm founding and the selection of CEO and board members are negatively related to firm corporate entrepreneurial intensity. Another heritage effect from the pre-reform government is government ownership, which is also hypothesized to have negative effects on firm corporate entrepreneurial intensity. On the contrary, the reform policy carried out during the institutional transition period is hypothesized to have positive with firm corporate entrepreneurial intensity. As for informal institutions, the three types of business group control mechanisms – cultural, strategic, and financial controls - are hypothesized to positively influence corporate entrepreneurial intensity. The next section will describe the research methodology for testing the above-mentioned hypotheses.

CHAPTER FOUR

METHODS

Sample

The characteristics and functions of diversified business groups are closely linked to the historical, political, economic, and socio-cultural factors of their economies. Furthermore, there is path dependence between business groups and their institutional environment, whereby the development of diversified business groups depends greatly on, and will influence the evolution of, existing institutions in the economy. As a consequence, it is extremely difficult to conduct comparative and cross-national studies without examining the dynamics, timing, and country-specific effects of institutional change.

Also, sampling and data collection can pose problems to empirical studies on groups, especially those in emerging economies as well. Most of the studies are conducted on publicly traded companies due to the availability of data sources. However, it is well observed that most business groups have a large number of unlisted firms (Khanna, 2000), thereby, making it difficult to obtain a representative sample. Another problem is that the listing criteria and accounting reporting standards may either be unavailable or inconsistent across different government levels within a country as well as across different emerging economies, resulting in differences in time and levels (Hoskisson, et al., 2000). As such, the availability and comparability of data sources may limit the feasibility of conducting comparative studies of diversified business groups.

Furthermore, the operationalization of performance measures is controversial in studies on emerging economies. Recent studies point out that performance measures, such as the stock performance, are differentially informative across countries (Morck, Yeung, & Yu, 1999). Such differences may confound findings in cross-country research on business groups. Besides, researchers also challenge the validity of the performance measures. The problem is further complicated by differences in financial reporting systems, the lack of systematic reporting systems due to reforms, and the incentives for private firms to hide profits, which contribute to validity and reliability problems of the performance measures used in studies on emerging economies (Hoskisson, et al., 2000).

In addition, there is lack of common definition of group membership in the business groups literature. Most of the prior studies have glossed over the fundamental question of what delineates group boundaries, and yet, the definition of business groups rests heavily on the perception of local observers (Khanna & Rivkin, 2000). As such, the lack of common definition of group membership makes multiple-country studies difficult.

In conclusion, the empirical issues mentioned above imply that cross-country comparative findings will be confounded by the country-specific institutional factors that are changing at a volatile pace, data availability and data comparability due to the idiosyncratic accounting and reporting practices of each country, and the absence of common business group definition. Accordingly, the focus on single country appears to be a sensible first step to understanding the more general issue of the business group's nature worldwide (Khanna & Rivkin, 2000).

In this study, China was chosen as the empirical setting. The definition of business groups rest on both the Chinese government officials (the National Statistics Bureau) and the respondents' perceptions. There are 2,400 business groups in China (China's Yearly Review, 2000). The sample of this study is the largest 250 business groups in China and their five largest member firms. These firms are selected in the sample because they allow a stronger test of the theory proposed in this study. First, the largest 250 business groups are likely to have inherited and reforming government influence; and second, the size of the business group are likely to have strong internal control mechanisms, thus allowing the test of the effects of group's control mechanisms on members firms.

The level of analysis of this study is the member firm level. We received a total of 1,172 questionnaires from the member firms. After cases with missing information are deleted, the final sample size is 992. The sample consists of firms covering 29 states and 6 major industrial sectors (agriculture, industries, architecture, transportation and telecommunication, wholesale and retailing, and property and real estates) in China. Among the 250 business groups, 148 of them have 10,000 employees or more.

Data Collection

The data of this dissertation was employed from the China's Business Group research project that was sponsored by the Research Grants Council of the Hong Kong Government (Project no.: CUHK4092/98H). The data was collected with the help of the China's National Statistic Bureau. To ensure the quality and reliability of the data, several procedures were taken. First, two surveys were developed, one archival and one perceptual. Both archival and perceptual survey data were collected at both the business group and member firms levels to allow cross-validation of information, especially when there is no extensive published data in emerging economies such as China. The archival survey data concerns mainly firm accounting and financial information. They were reported by the chief accountants of the firms in the sample. The perceptual survey data concerns more about strategic and control information and they were filled by the top managers in the sample firms. The use of both archival and survey data solved the problem of common method variance.

Second, several actions were taken in administering the questionnaires. First, questionnaires were sent to the largest five member firms of each business group. The use of multiple informants allows the triangulation of information as well as the reduction of respondent's bias. Following James, Demaree and Wolf (1984), interrater agreements on the three business group control mechanism scales were calculated. James et al. (1984) developed the within-group similarity or agreement coefficient, r_{WG}, to assess interrater reliability among the judgments made by a single group of judges or respondents (e.g. member firms within a business group) on a single variable (e.g. strategic controls) about a single referent (e.g. the parent firm in a business group). The r_{WG} formula for ratings of a single target on a multi-item scale is defined as the following,

$$r_{WG(J)} = \frac{J\,(1 - S_{xj}^2 / \sigma^2_{EU})}{J\,(1 - \overline{S_{xj}^2} / \sigma^2_{EU}) + \overline{S_{xj}^2} / \sigma^2_{EU}}$$

Where:

r_{WG} = within-group agreement coefficient for respondents' mean scores based on J items

$\overline{S_{xj}^2}$ = mean of the observed variances on the J items

σ^2_{EU} = expected variance of a hypothesized null distribution

The results showed that the median r_{WG} for cultural controls, strategic controls, and financial controls, are 0.74, 0.77, and 0.86, respectively. The median values were reported as they can reflect the distribution of coefficients more accurately (Jones, Johnson, Butler, & Main, 1983). A rule of thumb has been advanced by James and his colleagues such that values of r_{WG} above 0.7 are indicative of satisfactory agreement within respondents (James, et al., 1984). As such, the three group control mechanism scales achieve satisfactory interrater agreement.

Also, the questionnaires were translated and back translated to eliminate measurement errors due to language differences. Finally, a pilot study, in which questionnaires were tested by a group of Chinese managers, was conducted before launching the large-scale distribution of the survey.

Third, non-response bias was minimal, as there was a 91% response rate. This was facilitated by the use of government agency, the China's National Statistics Bureau's that is comparable to the Securities and Exchange Commission in the United States, to audit the data collection process. The National Statistics Bureau was in charge of distributing and collecting the archival and survey data. The Statistics Bureau officials also gave follow-up phone calls to validate the information reported by the sample firm managers. This helps ensure the accuracy of information from the respondents.

Finally, to capture the transitional nature of the settings in this study, data were collected in 1998 and managers were asked to provide financial data over the period of 1996 to 1998. First, the second phrase of China's Economic Reform started in 1994 in which the old institutions were gradually phrased out and new institutions were introduced to replace the old institutions (Qian, 2000). Second, the year of 1996 is the year when most of the business groups were formed (China's Yearly Review, 1997). Third, the data collection period should allow enough time for the lagged effects on the dependent variable, corporate entrepreneurial intensity. Therefore, the time frame of the study should be able to measure the effects as predicted in the theoretical framework.

Measures

Dependent Variable

Corporate entrepreneurial intensity. Past research suggests two main dimensions of corporate entrepreneurship: innovation and strategic renewal (Guth & Ginsberg, 1990). Innovation refers to the firm's commitment to creating and introducing new products, production processes, and organizational systems (Covin & Slevin, 1991; Lumpkin & Dess, 1996). Strategic renewal refers to revitalizing the firm's operations and building or acquiring capabilities (Zahra, 1993, 1996). In transition economies where the product and technological markets are still underdeveloped (Khanna & Palepu, 1997), both innovation and strategic renewal are especially referred to as internal capabilities building including product capabilities building, technological capabilities building, and marketing capabilities building. To capture these three types of capabilities building, this study measures corporate entrepreneurial intensity by four items: (1) Research and development expenditures, (2) Number of new products introduced to markets, (3) Plant and equipment investment, and (4) Marketing and distribution expenditures. They are measured by a 7-point Likert scale ranging from 1 (Decreased) to 7 (Increased) over the past three years (1996-1998) in the perceptual survey. The Cronbach's alpha is 0.81.

Independent Variables

Government Influence

Administrative heritage is subdivided into two constructs:

Firm founding. This is a dummy variable such that a value of 1 indicates the member firm was founded in accord with government declaration. This measure is from the archival survey.

CEO and board member selection. This is measured by the average of two items: government influence over the selection of CEO in the member firms, and government influence over the selection of board of directors in member firms. Both items are measured by 7-point response scales (1-little influence, 7-great influence) in the perceptual survey. The inter-item correlation between CEO selection and board member selection is 0.68.

State ownership. This is a proxy for ownership heritage and is defined by the percentage of shares owned by various state governing bodies in the member firms of the business groups. This is taken from the archival survey.

Government reform policy. This is measured by a 7-point response scale (1-little influence, 7-great influence) which asks to what extent the reforming government influence member firms via government policies including: (1) Industrial policy, (2) Taxation policy, (3) Policy to promote sales growth, and (4) Economic growth strategy policy. This is from the perceptual survey and the Cronbach's alpha of this scale is 0.88.

Business Group's Control Mechanisms

The three business group's control scales are all measured at the member firm level. They are perceptual measures of the member firm managers on the control mechanisms implemented by the parent firm in their respective business groups.

Cultural Controls. The cultural control factor is measured by a newly developed scale that is composed of 6 items on a 7-point response scale (1-Little extent, 7-Large extent) in the perceptual survey. These items measure the extent to which group executives evaluate member firms' performance through the use of group's culture. The six items include: (1) maintain the member firm's reputation within the group, (2) comply with a strong group culture, (3) maintain trusting relationships within the group, (4) maintain cordial relationships with other managers in the group, (5) participate in social activities with other mangers from member firms and businesses, (6) support each other, even to sacrifice one's unit benefits and to support other units to achieve the goal. The Cronbach's alpha for cultural controls is 0.83.

Strategic Controls. Strategic controls is measured by four items on a 7-point response scale in the perceptual survey that indicates the extent to which the group executives exercise strategic controls to evaluate the performance of the member firms. The strategic control scale is adapted from a previous well-established scale by Hill, Hitt, and Hoskisson (1992). It consist of the following items: the extent to which the group parents (1) understand the industry in which the member firm competes, (2) understand the strategy of the member firm, (3) understand the strategy of the principal competitors of the member firm, and (4) jointly develop strategic initiatives with the member firm. The Cronbach's alpha for strategic controls is 0.88.

Financial Controls. The financial control factor is composed of four items on a 7-point response scale in the perceptual survey. The scales indicates the importance of financial measures and procedures group executives used in evaluating the member firms' performance. The financial control scale is adapted from a previous well-established scale from Hill, Hitt, and Hoskisson (1992). It consists of the following items: the extent to which affiliate firm is evaluated based on: (1) Return on assets, (2) Profit, (3) Sales, and (4) Sales growth. The Cronbach's alpha for financial controls is 0.83.

Control Variables

Variables which are found to have influence on the dependent variable, corporate entrepreneurial intensity, in the past literature are added in the model as control variables. The control variables are both at the member firm level, business group level, and industry level.

Member firm level

Firm size. Firm size has been shown to influence R&D expenditures (Baysinger & Hoskisson, 1989) and new product introductions (Chaney & Devinney, 1992). Firm size was calculated by using the logarithm of the number of employees.

Firm performance relative to principal competitors. Similar to firm size, firm performance is also shown to influence R&D expenditures and new product introductions (Chaney & Devinney, 1992). Thus the effect of firm performance was controlled in this study. In addition, the performance measure is a relative measure from the perceptual survey. That is, the respondents were asked how they perceive their firms' performance relative to the competitors in the industry. In this way, industry effects were also controlled. Three performance indicators were used: return on assets relative to the principal competitors, return on sales relative to the principal competitors, and return on equity relative to the principal competitors. Respondents are asked to indicate on a 7-point response scale how the three performance indicators changed in the past three years (1-decreased, 7-increased). The Cronbach's alpha of the firm performance scales is 0.97.

Current ratio. Current ratio, as a measure of firm liquidity, has been found to influence the amount of funds available for corporate entrepreneurial activities (Baysinger & Hoskisson, 1989). It is measured by current assets divided by current liabilities. This is a three-year average from 1996 to 1998 and is taken from the archival survey.

Business group level

Group's product diversification. As mentioned in the theoretical framework, the business group is a resource base for its member firms. Accordingly, the more diversified the business group, the more diverse are the resources for member firms' entrepreneurial activities. Past literature has found that product diversification had influence on both R&D expenditures and new product introductions (Hitt, Hoskisson, Johnson, & Moesel, 1996; Hoskisson & Hitt, 1988). To measure the level of product diversification, the entropy measure was adopted (Jacquemin & Berry, 1979; Palepu, 1985). The entropy measure formula is:

$$\text{Entropy measure} = \Sigma P_j \times \text{In}(1/P_j)$$

Where

P_j = the percentage of firm sales in segment j

$\text{In}(1/P_j)$ = weight for each segments j

The entropy measure takes into account the number, and the relative importance, of each segment within a business group. The entropy measure has also been found to have good construct validity relative to other measures of diversification such as SIC count measures (Hoskisson, Hitt, Johnson, & Moesel, 1993). The entropy measure is from the archival survey.

Group's geographic dispersion. Due to the less developed transport and communications infrastructure as well as regional protectionism in China, member firms may face geographic barriers in coordinating corporate entrepreneurial activates when they are geographically distant from each other. Therefore, group's geographic dispersion is expected to have negative influence on firm's corporate entrepreneurial intensity. Geographic dispersion is measured by a two-digit geographic code count in the archival survey. Since some business groups have less than five member firms reported in the survey, the two-digit area code count is divided by the number of member firms in each business group. In general, a higher value of the measure indicates greater geographic dispersion of the business group.

Group's performance. Group performance is expected to have a positive effect on member firm's corporate entrepreneurial intensity. Group performance is proxied by group's return on sales and is measured by a 7-point response scale (1-decreased, 7-increased) over the period from 1996 to 1998 in the perceptual survey.

Table 2 summarizes the measures, data sources, and reliabilities (Cronbach's Alpha) of the variables used in this study.

Insert Table 2 about here

Confirmatory Factor Analysis

To further explore the internal structure of the scales and the validity of the measures mentioned above, confirmatory factor analysis was conducted. Table 3 summarizes the results of the confirmatory factor analysis. The results showed that all the observed variables were loaded on their respective latent variables with factor loadings exceeding 0.48. The rule of thumb for factor loadings higher than 0.40 is routinely used in the social sciences (Ford, MacCallum, & Tait, 1986). As such, there is adequate unidimensionality of the constructs. To test for the convergent and discriminant validities of the constructs, composite reliabilities and average variance extracted are calculated following the equations formulated by Fornell and Larcker (1981). The composite reliability is computed as follows:

$$\rho_\eta = \frac{(\Sigma\, \lambda_{yi})^2}{(\Sigma\, \lambda_{yi})^2 + \Sigma\, \mathrm{Var}\,(\varepsilon_{yi})}$$

And, the average variance extracted is computed as follows:

$$\rho_{vc(\eta)} = \frac{\Sigma\, \lambda^2_{yi}}{\Sigma\, \lambda^2_{yi} + \Sigma\, \mathrm{Var}\,(\varepsilon_{yi})}$$

Where

λ^2_y = standardized factor loading of item y

Var (ε_y) = error variance of item y

The composite reliability, ρ_η, indicates the convergence reliability of each measure in a single factor. In this study, the composite reliabilities of all constructs are close to or exceed 0.70, thus achieving satisfactory convergent validity. The average variance extracted, $\rho_{vc(\eta)}$, indicates the discriminant validity of the construct as it measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error. In this study, the average variance extracted of all the constructs is close to, or greater than, the rule of thumb of 0.50 (Fornell & Larcker, 1981). This indicates that the variances captured by the items in each of the constructs are more than the variances due to measurement error, thus achieving satisfactory discriminant validities of the constructs. As such, both the convergent and discriminant validities of the constructs are confirmed in this study.

The confirmatory factor analysis also indicates that the overall measurement model is performing well. This is supported by the model fit indices that determines to what extent the model fits the sample data. The common model fit criteria used are chi-square (χ^2), goodness of fit index (GFI), comparative fit index (CFI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (RMR) (Bentler, 1989; Jöreskog & Sörbom, 1996). A value of 0.90 and above of the fit indices and a value of less than 0.05 of RMSEA and RMR indicate a good model fit. The chi-square statistics is 1306.36 (df=273, p=0.001). The goodness of fit measures in Table 4 reflects the measurement model is of adequate fit. Both of the GFI and CFI are 0.91 and the RMSEA and RMR are 0.06 and 0.04 respectively.

In all, the confirmatory factor analysis supports adequate convergent and discriminant validities for each of the constructs. As such, the measures can be used in later statistical analysis in this study.

Insert Table 3 about here

Statistical Analysis Method

Hierarchical regression was used to test the individual hypotheses in this study. With this procedure, controlled variables were entered first, and then followed by the two sets of independent variables (government influence and group's control mechanisms), and finally the interaction terms were entered. By inserting the sets of variables hierarchically in the regression model, we can account for the increments in the proportion of variance explained of the dependent variables due to the addition of each new set of independent variables to those that are higher in the hierarchy (Cohen & Cohen, 1983). The use of hierarchical regression analysis is particularly helpful for examining how formal and informal institutions explain incremental variance relative to corporate entrepreneurial intensity of member firms in a diversified business group.

The control variables were input in Model 1, and the main effects of the government influence variables and business group controls variables are input in Model 2 and Models 3-5. Since the three types of group's control mechanisms are correlated among each other at $p<0.01$ level, they are inserted hierarchically in the regression models. Models 2, which consist of the control variables and the main effect variables, are considered as the base models of the study.

CHAPTER FIVE

RESULTS

Descriptive Statistics

The means, standard deviations, correlations and variance explained factors (VIF) of the variables are presented in Table 4. From the correlation results, there is no collinearity problem for all the independent variables, except for the correlations among the three group controls variables (cultural controls and strategic controls are correlated at 0.46, $p<0.01$; cultural controls and financial controls are correlated at 0.39, $p<0.01$; and strategic and financial controls are correlated at 0.33, $p<0.01$). To solve the multicollinearity problem, the group control mechanism variables were inserted hierarchically in the regression models. Finally, the variance inflation factors (VIFs) of the independent variables showed that collinearity did not pose a problem because the mean of all the VIFs is 1.07, which is not considerably larger than 1.0 (Chatterjee & Price, 1991).

Insert Table 4 about here

Results of Hypothesis Tests

The following presents the hierarchical regression analysis results. Overall, the control variables and independent variables together account for considerable variance explained of the dependent variable, corporate entrepreneurial intensity, with R^2 ranging from 0.27 to 0.29 (Models 3 to 5). The hierarchical regression also indicates significant incremental variance explained by both the government influence variables and the control mechanism variables. Model 2 shows that the inclusion of government influence variables account for an additional 10% variance explained (R^2=0.10, F statistics for change=3.24, p<0.001). In Model 3, Model 4, and Model 5, the inclusion of each of the group's control mechanism variables account for 3% to 18% of the variance explained. It can be concluded that both government influence, as a formal institution, and control mechanisms of business group, as an informal institution, have significant effects on firm's corporate entrepreneurial intensity in a transition economy. The findings of each of the hypotheses developed in Chapter 3 are reported next.

Insert Table 4 about here

Administrative Heritage

Hypothesis 1 predicts that government influence via firm founding will have a negative effect on firm's corporate entrepreneurial intensity. In Model 2, firm founding is negatively related to corporate entrepreneurial intensity and such relationship is statistically significant (ß=-0.50, p<0.10). Therefore, Hypothesis 1 received marginal support.

Hypothesis 2, which predicts a negative relationship between government influence via the selection of CEO and board members and corporate entrepreneurial intensity, is not supported. There is no statistically significant relationship between the two variables (ß=-0.30, n.s.).

Ownership Heritage

Hypothesis 3 also predicts a negative relationship between government ownership and corporate entrepreneurial intensity. As predicted, government ownership has a statically significant negative effect on corporate entrepreneurial intensity ($ß=-0.07$, $p<0.05$). Therefore, Hypothesis 3 received support.

Reform Policy

In contrast to the above three institutional legacy variables, it is predicted that government reform policy will have positive effect on firm's corporate entrepreneurial intensity. The result in Model 2 of Table 5 supports this prediction. Reform policy exhibits a statistically significant, positive relationship with corporate entrepreneurial intensity ($ß=0.02$, $p<0.10$). Accordingly, Hypothesis 4 is marginally supported.

Group's Control Mechanisms

As for informal institutions, all the three types of group's controls mechanisms are expected to exert positive effect on corporate entrepreneurial intensity. Hypothesis 5 receives strong support as the coefficient of cultural controls, as shown in Model 3, is statistically significant at 0.001 level ($ß=0.10$, $p<0.001$). In addition, comparing Model 3 to Model 2, there is a significant incremental effect of cultural controls on corporate entrepreneurial intensity ($R^2=0.01$, F statistics for change=13.63, $p<0.001$).

Model 4 shows support for Hypothesis 6. Strategic controls is found to be positively related to corporate entrepreneurial intensity (β=0.05, $p<0.10$). Also, comparing Model 4 to Model 2, strategic controls has a significant effect on corporate entrepreneurial intensity (R^2=0.003, F statistics for change=3.35, $p<0.10$).

Financial controls exhibit a strong and positive relationship with corporate entrepreneurial intensity. In Model 5, the partial correlation coefficient of financial controls is 0.14 (β=0.14, $p<0.001$), meaning that one standard deviation of an increase of financial controls will lead to an increase of 14 standard deviations of corporate entrepreneurial intensity, given the values of all the other independent variables. Thus, Hypothesis 7 is strongly supported. Moreover, financial control exerts considerable incremental variance explained with an R square change of 0.018 and an F statistics for change of 24.36 ($p<0.001$).

In summary, six out of the seven hypotheses receive statistically significant support. This demonstrates that the empirical mode of the study contains strong main effects. As predicted, government influence via firm founding and ownership exert negative influence on corporate entrepreneurial intensity, while reform policy, together with the group's cultural, strategic, and financial controls, are found to have positive effects.

Other Results - Control Variables

A total of six control variables are included in the statistical models to account for both the firm's and group's effects on corporate entrepreneurial intensity. Consistent with previous studies, firm size and relative firm performance exhibit strong and positive relationships with corporate entrepreneurial intensity. Other control variables are not statistically significant.

To conclude, the empirical findings reported in this chapter are in support of the theoretical arguments developed in this dissertation. Most of the main effects are supported, even after controlling for other strong predictors such as firm size and relative firm performance.

CHAPTER SIX

DISCUSSION AND CONCLUSION

In this chapter, empirical findings and implications of the study will be discussed and a research agenda for future research will be suggested. The dissertation ends with a final conclusion.

Discussion of Empirical Findings

The dissertation provides strong support for the general model as presented in Figure 4. In fact, six of the seven hypotheses received support from the results of the study. These results suggest that corporate entrepreneurial activities in a transition economy are likely to be constrained by formal institutions inherited during firm founding and continuing through government ownership. However, such activities can be fostered by new institutions in both formal (e.g., government reform policies) as well as informal forms (e.g. business group's control mechanisms).

Government Influence

Administrative heritage

The findings show that inherited government influence via firm founding is negatively related to corporate entrepreneurial intensity. This provides strong implications for the fields of institutional theory and strategic management. First, firm founding reflects the embeddedness effects (Oliver, 1996) in the Chinese firm sample. There are two types of embeddedness effects. One is derived from political embeddedness. Member firms founded by the government will maintain close political relationships. The other type is cognitive embeddedness. Administrative heritage influences managerial and organizational cognition (Eden & Spender, 1998). The founder's (government) philosophy and the top management's (previous government officials) ways of doing things will continue to influence organizational cognition of the member firms in business groups. In the transition economy of China, the inherited administrative heritage from the previous state-owned firms and government ministries will inhibit the entrepreneurial growth of member firms in a business group.

Second, the effect of firm founding highlights the importance of founding condition to a firm's subsequent strategic decision and outcome. It is found that the innovativeness of a firm's founding resources is positively related to its subsequent strategic actions such as building patent portfolio (Kelly & Rice, 2001). However, the formation of business groups through government administrative means (such as the conversion of previous government agencies or industrial bureaus into business groups and the forced marriage of firms in the same regional jurisdictions by the local governments) may suggest a non-economic rationale for resource combinations. Such an administrative combination of member firms in a business group results in a heavy social and financial burden on the groups as well as making coordination among member firms difficult. Therefore, instead of relying on administrative means to combine firms' resources in a business group, a market means should be encouraged. However, the lack of an efficient strategic factor markets (Leff, 1978) and the inter-regional competition among local governments (Nee, 1992) have prevented effective mergers and acquisitions in China. This indicates a strong need for more market development and less government administrative intervention in firms in transition economies such as China.

Alternatively, no statistically significant relationship was found between CEO and board member selection and corporate entrepreneurial intensity. The lack of statistical significance may reflect first, the lack of managerial skills and knowledge with free market practices, and second, it may reflect an ineffective compensation system of top managers, or the underdeveloped board system in a transition economy.

The previous government officials may continue to run the firms as government ministries because they lack the skills, knowledge, experience, and mindset for managing firms in a market oriented environment. Also, the continued appointment of government officials in corporatized firms may lead to entrenchment problems, as studies have found that managers with longer tenures are more likely to initiate entrenchment efforts and adversely affect firm growth (Tosi, Katz, & Gomez-Mejia, 1997). Furthermore, there are still restrictions on the managerial compensation in China. For example, top executives' compensation should not be exceeding a certain times of the average salary of the employees in the firm (China Industrial Report, 2001). Thus, top management may not have adequate incentives to align their interests with the firm's interests.

There is also a concern about the effectiveness of board systems in privatized firms in emerging economies. The continued government influence in the board of the firms through the appointment and selection of board members indicate that board membership is in proportion with ownership (Dharwadkar, George, & Brandes, 2000). As a result, new top management and new board membership is needed after administrative restructuring of business groups in China. Further exploration on top management and board structures may require future research efforts to fully explore this issue.

In conclusion, borrowing from the international business literature (Barlett & Ghoshal, 1989), this study finds administrative heritage an important construct to be studied in institutional change research. Administrative heritage reflects the unique characteristics of firms during institutional transition. It recognizes the continued effects of inherited firm-specific attributes from the previous institutional period relative to the new institutional period. As shown in the transitioning context of the Chinese economy, the non-separation between government administration and corporatization is an institutional barrier that appears to hinder corporate entrepreneurial growth.

Ownership heritage

My research findings indicated that ownership heritage imposed strong negative effects on member firms' corporate entrepreneurial intensity. The government continues to have predominant influence as government retains significant ownership shares in group member firms. The transformation of the former state-owned enterprises into private firms refers simply to the transfer of operation rights, instead of the transfer of ownership and control, from the state to the private entities. The continued government holding of ownership shares in firms may, again, reflect the lack of market-economy formal institutions, in a transition economy. The lack of well-developed stock market and property rights discourages private investors to invest in firms. Moreover, the continued government ownership in firms increases the likelihood of expropriation of other owners, which further reduces the chances of private owners to invest.

In the privatization literature, Dharwadkar et al. (2000) treated government ownership as insider ownership of a firm. They argue that the long history of government involvement in the pre-privatized firms displays the dynamics of an insider in the privatized firms. And past studies support the contention that insider ownership can be effective in the context of strong governance. Comparing this finding, the negative effects of government ownership in this study may reflect the lack of a strong governance system due to the immature market development in the transition economies.

In all, the findings on administrative heritage and ownership heritage suggest that the pre-existing institutions in transition economy have important legacy effects on organizations. The existence of these institutional legacy effects will slow down the pace of corporate entrepreneurial growth in firms. How long the institutional legacy effect will last is contingent on the pace of institutional transition and market development.

Reform policy

Consistent with the Hypothesis 4, a positive relationship between government reform policy and corporate entrepreneurial intensity is found. Reform policy is the vehicle for transforming the economy from a planned one to a market one. In fact, it is concluded that the most effective means to transform a planned country into a market economy is through regulations. In Scott's (1995) terms, it is easier and quicker to pursue de-institutionalization and re-institutionalization through *regulative* means rather than through *normative* and *cognitive* means (Kostova, 1999). Changes in the regulative domain of the institutional environment will induce changes in the normative and cognitive domains. This study provides empirical evidence that the effects of the Economic Reform Policy are working in promoting more corporate entrepreneurial growth in China.

In summary, the empirical findings on government influence during institutional transition uncover the multi-dimensional structure of the government influence construct, which imposes different effects on corporate entrepreneurial intensity. This demonstrates exactly the crossroad effect of pre-existing and emerging formal institutions in a transition economy and highlights the importance of examining the evolutionary nature of such institutions in future studies.

Business Group's Control Mechanisms

Cultural controls

The results of this study strongly suggest that implementing cultural controls will facilitate more entrepreneurial activities in member firms of a business group. This suggests that the cultural control mechanism substitutes for the market institutions by facilitating sharing resources and information for promoting innovation in products and processes. The interdependence of member firms from different industrial sectors will fuel innovations with each other within the business groups, thereby, enhancing the total set of technological opportunities (Zahra et al., 2002). In other words, cultural controls increase the ease and speed of innovation diffusion among member firms. Second, cultural control mechanism is effective mechanism in governing member firms such that less opportunistic behaviors but more positive citizenship behaviors occur in a business group.

Past research, however, suggests that firms with strong cultural controls can become too homogeneous and less adaptive for innovations in the context of Japan (Jaeger & Baliga, 1985). It is also found that business groups which are more centralized and with more hierarchical levels led to lower performance and productivity in their member firms in the context of China (Keister, 1998). To check for possible curvilinear relationship between cultural controls and corporate entrepreneurial intensity, a square term of cultural controls is added in the same hierarchical regression model. The results showed that the square term of cultural controls, like its linear term, is positively and significantly related to corporate entrepreneurial intensity ($\beta=0.10$, $p<0.001$). This suggests that the stronger the cultural control, the much higher corporate entrepreneurial intensity of member firms is found in the Chinese business groups. This indicates that the institutional void and governance explanations are more suitable than the internal bureaucracy explanation in such a context and sample period. Future studies can further explore the curvilinear relationship between cultural controls and corporate entrepreneurial intensity.

Strategic controls

Compared to cultural controls and financial controls, the positive effect of strategic controls on corporate entrepreneurial intensity is apparently not as strong.

One possible reason for this is that managers lack knowledge and skills to develop and implement competitive strategies as those developed in the market-based economy (Khanna & Palepu, 1997; Zahra, Ireland, Gutierrez, & Hitt, 2000). An alternative reason is due to the administrative restructuring of member firms into a business group by local government as discussed earlier. The loose coordination among member firms due to those "forced marriages" makes strategic controls more difficult to implement.

Finally, the concept of strategic controls may still be new to managers in the Chinese context. To those previous government officials, strategic may refer more to the national strategic mission instead of corporate strategic mission. Or as found in the Korean executives, strategic orientation may refer to the Korean cultural heritage that fosters a form of management Chandler called "group capitalism"(Barlett & Ghoshal, 1989; Hitt, Hardee, Tyler, & Park, 1995). This can be shown by the strong correlation between strategic controls and cultural controls in this study, indicating that the two constructs are closely related in the Chinese managers' perception. Notwithstanding the weak empirical support, the results of this study did show that strategic benefits are realized with the use of strategic controls in monitoring member firms of Chinese business groups.

Financial controls

The results of this dissertation found strong support for the positive relationship between financial controls and corporate entrepreneurial intensity. This is in contrary to the negative effects of financial controls on internal innovation in past empirical analysis using the US sample (Hitt, et al, 1996; Hoskisson & Hitt, 1988). This highlights the importance of financial economies provided by the use of financial control mechanism in a business group in transition economies. Financial controls, as an output control device, provide incentives for managers to utilize the abundant resources (from both the governments and business groups) more efficiently. In transition economies, enhancing efficiency requires firms to invest in better plant and equipment as well as process innovation due to undeveloped product and technological markets. Therefore, financial control motivates firms to pursue more corporate entrepreneurial growth in transition economies. In fact, financial controls may not necessarily lead to shortsightedness of managers because managers may have different interpretations of the financial indicators. For example, compared to U.S. executives, the Korean executives pursue financial indicators such as return on investment (ROI) for the purpose of market expansion and growth (Hitt, Tyler, et al., 1995). They are less sensitive to short-term profitability and more sensitive to long-term growth strategies. Therefore, financial controls may motivate managers to focus more on long-term corporate entrepreneurial growth of the firm.

An alternative explanation for this finding relates to the measures adopted in this study. The group control mechanisms constructs are measured as the managerial perception about the use of control mechanisms imposed by their parent firms on the member firms in a business group. From these member firm managers' perspective, it would be very risky for them to pursue expensive corporate entrepreneurial activities especially when the external capital market is still undeveloped. Instead, by relying on the internal capital market of the business groups, member firms feel less risky to pursue corporate entrepreneurial activities because financial controls facilitated by the internal capital market helps pool the financial risks of member firms together. Also, with strong financial controls, managers may know the budget for these expenditures. Without strong financial controls, they may not know what is available to spend and thus be more conservative than they otherwise should be. Hence, financial controls exert positive influence on corporate entrepreneurial intensity.

In summary, informal institutions are said to fill the institutional voids during institutional transition (Khanna & Palepu, 1997). This study confirms this void-filling role of diversified business groups in the transitional economy of China. The three group control mechanisms (cultural controls, strategic controls, and financial controls) help maximize the strategic and financial benefits of member firms by facilitating corporate entrepreneurial activities in the firms.

Complementarity between Formal Institutions and Informal Institutions

The results of this dissertation found that both formal institutions in the form of government influence and informal institutions in the form of business group's control mechanism have profound effects on corporate entrepreneurial intensity. However, formal and informal institutions are not working alone but they exist simultaneously (North, 1990). Furthermore, the relationship between formal and informal institutions is a self-enforcing constitution so that the formal institutions laid down by the government require a consensus among people to be willing to support and defend it (Weingast, 1993). That is, the constitutions that are constructed according to the principle of the rule of law need to be supported by the appropriate civic culture and shared beliefs. However, since the informal rules are anchored in people's minds, changes in formal rules require social learning in order to produce the desired institutional results. This kind of social learning is a function of the expected pay-offs of different kinds of knowledge and the cognitive capacities required to solve the new kinds of problems in the new institutional setting (North, 1995). As such, the kind of learning determines the direction of institutional change and the rate of learning determines the speed of institutional change. In sum, both formal and informal institutions have to be complementary with each other in order to achieve a successful institutional change. In support of a wealth-creating economy for the transition economies, the institutional framework requires the complementarity between formal and informal institutions. Therefore, I further examine the interaction effects between formal and informal institutions on corporate entrepreneurial intensity.

Formal and informal institutions may not transition at the same pace and in the same directions sometimes. In the transition economy of China where a more gradual evolutionary institution transition is implemented, the old formal institutions have not been fully abolished while the emerging informal rules have been put into place. Thus, there is no complementarity between the old formal institutions carried over from the pre-reform era and the emerging informal institutions in the new reform era. Although conflicts may exist, the ultimate goal is to transition the economy towards a more clear institutional mix that is defined by new forms of formal and informal institutions.

To necessitate the institutional change, a new set of informal rules is required to shape and cultivate new norms of social behaviors. The three types of control mechanisms – cultural controls, strategic controls, and financial controls – help revitalize the cognitive mindsets of managers in the firms that are constrained by the legacy of the previous communist government. Therefore, it is expected that the negative effects imposed by the inherited government influence (administrative heritage and ownership heritage) on corporate entrepreneurial intensity will be overcome by the new reforms as well as by the three types of control mechanisms in the business groups. In other words, the three control mechanisms will moderate the relationship between the heritage variables and corporate entrepreneurial intensity such that the negative relationship is weaker for firms with a stronger emphasis on three types of group controls.

Furthermore, the emergence of formal institutions in the form of government reform policy and informal institutions in the form of diversified business groups are complementary with each other, thereby, fostering more entrepreneurial growth in the firms. For instance, the social sanction mechanism of cultural controls fosters a new norm of behavior for member firms in a business group. These informal rules and codes of conduct are necessary for government reform policy to be effectively implemented.

Complementarity is also found in the use of strategic controls and government reform policy. Strategic controls can help realize the strategic benefits of member firms in a diversified business group. Firms under government influence via reform policy are shaped to follow the strategic directions set in the Economic Reform. In addition, as mentioned above, firms accumulate slack resources due to the preferential treatments of local governments during the Economic Reform. Implementing strategic controls can facilitate better utilization of resources in strategically relevant ways and realize synergistic economies. As such, strategic controls coincide with the strategic orientations of firms under the reforming government influence so that more long-term strategic benefits will be realized.

Finally, the financial economies resulted from the use of financial controls can help member firms that are now under harder budget constraints as opposed to the soft budget constraints for most state-owned enterprise in the pre-reform era. Therefore, financial controls, together with the incentives set by government reform policies, will better support firms to engage in corporate entrepreneurial activities. In all, it is expected that the three types of control mechanisms will reinforce the relationship between government influence via reform policy and corporate entrepreneurial intensity. That is, the three types of controls will moderate the relationship between government reform policy and corporate entrepreneurial intensity such that the positive relationship is stronger for firms with a stronger emphasis on the three types of controls.

To test for the interaction effects, interaction terms are introduced to the model hierarchically. Models 4-6 include the interaction terms between administrative heritage and the three types of group's control mechanism (cultural controls, strategic controls, and financial controls) variables. Models 7-9 include the interaction terms between ownership heritage and the three types of group's control variables. Models 10-12 include the interaction terms between government reform policy and the three types of group control variables. To avoid multicollinearity problem in equations having interaction terms, centering procedure was taken (Cohen & Cohen, 1983). This also makes the effects of the interaction terms more interpretable. The results of the post-hoc analysis on the interactive effects between government influence and business group's control mechanisms on corporate entrepreneurial intensity are presented in Tables 6, 7, and 8.

Insert Tables 6, 7, and 8 About Here

In general, there are not strong interaction effects found. Among the total of 12 pairs of interaction terms, four sets of interactions have statistical significant effects. Cultural control is found to have negative interactive effects with both firm founding (R^2=0.003, ß=-0.05, $p<0.05$) and reform policy (R^2=0.01, ß=-0.06, $p<0.05$). Financial control is also found to have negative interactive effects with both firm founding (R^2=0.008, ß=-0.09, $p<0.001$) and government ownership (R^2=0.002, ß=-0.05, $p<0.10$). Strategic controls did not have any significant interaction effects with the government influence variables at all. The interaction plots of these four pairs of interactions are presented in Figures 5-8.

Insert Figure 5, 6, 7 and 8 About Here

These findings generally indicate the non-complementarity between formal and informal institutions during the institutional transition period in China. In particular, the negative effects of government influence outweigh the positive effects of group's control mechanisms on corporate entrepreneurial intensity. This may be due to the fact that the formal institutions are so deeply rooted, while the new reform policy and emerging business group's control mechanisms have a short history and will need to take extra time for them to be effective in overcoming the inertial effects of the former institutional legacy.

In fact, the emergences of formal and of informal institutions are being implemented in different time frames. Usually, an institutional change is initiated by conscious changes in formal institutions, which subsequent requires complementary but more spontaneous changes in informal institutions in order for a complete institutional transition. Since the informal rules are anchored in people's mindsets, it requires a learning process. This echoes North's (1990) notion of adaptive efficiency and the assessment of which involves the consideration of the willingness of a society to acquire knowledge and learning. In all, either formal and informal institutions alone is a necessary but not sufficient condition for wealth creation. The emphasis should be on the complementarity between the two. Accordingly, the interactions between formal and informal institutions deserve future research attention.

Future Research Agenda

Institutions and Organizations

The dissertation has made contribution to organization and management theories on institutions and organizations. Perhaps the greatest contribution of the study is that it tapped the transition nature of institutions and examined such transitioning institutional effects on organizations. This supports the notion that the process of institutional transition is by nature an incremental one (Spicer, McDermott, & Kogut, 2000) and also underscores the importance of studying deinstitutionalization (Scott, 2001). This study adopts a cross-sectional approach to examine the snapshot of transitioning institutional effects on organization. However, it would be of great interests to study if the effects of transitioning institutions differ at different periods of institutional transition. For instance, will the negative effects of government heritage and the positive effects of business group become weaker when the marketization of the economy is done? Longitudinal studies are called for further exploring the process of institutional transition. In all, this study highlights that institutional transition will be a fruitful area for us to further explore in the future.

In addition, this study has provided a finer-grained examination of the institutional effects on firm's strategy. This study has examined different types of institutional effects: formal and informal institutions, as well as pre-existing and emerging institutions. Also, the results of this study suggest both positive and negative effects of government influence on corporate entrepreneurial intensity. Hence, this suggests that there may be heterogeneous effects of associated with one institutional factor. To extend from this study's result, future research can examine if different levels of governments have different impacts on firm's strategies.

Finally, as shown in our post-hoc analysis, formal and informal institutions interact with each other. So, another potential topic in regard to institutions and organization is to examine the interactions between formal and informal institutions. For instance, one issue is about path dependencies. How will formal institutional change influence the type of social learning in order to facilitate corresponding informal institutional change? And how will the cognitive mindsets incorporate by informal institutions determine the direction and speed of institutional change in the future? Future studies can explore the issue of path dependencies in institutional change.

Business Groups

This dissertation also has made contribution to strategic management theories on business groups. The present study has provided a deeper understanding about the relationship between member firms and their parent firms in a business group. Previous research has focused on the rationales for the emergence of business groups. However, research on how a diversified business group is managed is rare. This dissertation takes the first step to fill this gap by extending the concept of organizational controls in the multidivisional form literature to the business group level. It highlights the importance of the adoption of appropriate control mechanism to realize the strategic benefits for the business groups. In particular, the findings show that both cultural controls and financial controls have strong positive effects on member firms' corporate entrepreneurial intensity. This confirms again the institutional void-filling function of business groups that business groups substitute for markets in transition and emerging economies. Future studies may explore if there is a threshold beyond which the benefits realized by the control mechanisms will be outweighed by the costs of implementing them.

Also, the empirical findings of this study show that the three types of control mechanisms (cultural, strategic, and financial) are correlated with each other. Future studies focused on devising finer-grained measures to delineate the three related constructs would be helpful. Similarly, another measure that can be improved is geographic dispersion. Geographic dispersion is used as a control variable to control for the effects of coordination complexity resulted from member firms being dispersed in different geographic locations. This study has adopted a count measure of number of geographic regions that the member firms of the same business group are located. This measure has not taken the actual geographic distance into consideration, which may be a more appropriate measure in the context of emerging economies due to the underdeveloped communication and transportation infrastructure. Future studies may consider using a geographic distance measure.

This dissertation also gives an alternative answer on the mixed findings of group effect on firm performance in the past literature. Past literature suggest that empirical evidence about the favorable effects of business groups on economic development via their effects on the firm performance of member firms remains speculative (Aoki, 1982; Caves & Uekusa, 1976; Chang & Choi, 1988; Khanna & Palepu, 2000b; Leff, 1978; Lincoln, Gerlach & Ahmadjian, 1996; Stark, 1996). This study examines the contribution of business groups to economic development via their effects on member firm's corporate entrepreneurial intensity. Corporate entrepreneurial intensity represents the wealth-creating internal capabilities of a firm, and therefore, should have more direct impact on economic development. The empirical findings of this study suggest that the group effect on member firm performance is contingent on institutional transition. The positive effects of business group control mechanisms on corporate entrepreneurial intensity are weakened by the institutional legacy effects such as government administrative heritage and ownership heritage. This indicates that the group effects on member firms may be contingent on the pace of deinstitutionalization and reinstitutionalization. Future longitudinal studies may explore the effect of institutional change on the relationship between group membership and firm performance.

Corporate Entrepreneurship

This dissertation has made contribution to corporate entrepreneurship theories on wealth creation. The present study responds to the recent call for the integration between strategic management and corporate entrepreneurship, or strategic entrepreneurship, for wealth creation (Hamel, 2000; Hitt, et al., 2001). Strategic entrepreneurship is entrepreneurial action with a strategic perspective (Hitt, et al., 2001). This study goes beyond the focus on the emergence of business groups (entrepreneurship) in transition economies, and examines how advantage is established and maintained from what is created in a business group (strategic management).

Also, both entrepreneurial and strategic perspectives should be integrated to examine entrepreneurial strategies that create wealth. Entrepreneurship is particularly important in transition economies because enhanced entrepreneurship in a country leads to greater national prosperity and competitiveness (Zahra, 1999). This study shows that business group is the engine for entrepreneurial growth in transition economies. Strategic management is also important for wealth creation in transition economies. This study demonstrates the commitment, decisions, and actions induced by the Chinese government to help firms become more competitive in the market. The findings of this study demonstrate that wealth creation via corporate entrepreneurial growth in transition economies is induced by government and facilitated by the large business groups.

In all, this study has paved a research path for integrating strategic management and corporate entrepreneurship in studying the wealth creation by business groups in transition economies. This study has examined the longer-term corporate entrepreneurial strategies and focused more on product innovations. Future studies may examine other corporate entrepreneurial strategies such as new venture creations and corporate renewals.

Conclusion

In conclusion, this dissertation has added to strategic management and organization theory literatures focused on institutions and corporate entrepreneurship. During institutional transition, a transition economy is facing institutional voids. Both government and business groups play critical roles in filling these institutional voids. On the one hand, formal institutions are transitioning. Government intends to foster economic growth by carrying out economic reform to facilitate more corporate entrepreneurial activities. However, such growth is impeded by the institutional legacy such as administrative heritage and ownership heritage of the government. On the other hand, business groups, as an informal institution, are emerging during the institutional transition. The cultural control, strategic control, and financial control mechanisms implemented in the business groups help facilitate member firms' resource allocation and knowledge diffusion for corporate entrepreneurial growth. Taken together, both of the transitioning formal institutions via government influence and informal institutions via business group's control mechanisms are important for the wealth-creating corporate entrepreneurial growth in transition economies.

This study sheds light on institutional theory literature by simultaneously examining the effects of formal and informal institutions during the period of institutional transition. It also contributes to the strategic management literature by looking at the relationship between government and firm strategy. Also, it examines the management and governance of business groups, which has little research attention in the literature so far. Finally, this dissertation has paved a research path for the importance of integrating strategic management and corporate entrepreneurship in studying the wealth creation by government and business groups in transition economies. In all, the results of this dissertation have critical implications on the relationship between institutional changes and strategy for firms and policy makers.

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Table 1
A Review of Current Literature on Business Groups

The Structural View	The Functional View	Performance Implications
1. Organizational Ties Member firms are tied by vertical or horizontal links along the value chain. • ***Vertical***: Vertical keiretsus • ***Horizontal***: Japanese keiretsus, Taiwan's *guanxi giye*	**1. Economic function** Diversified business groups perform an important role as market intermediaries for member firms to economize on the transaction costs. (Caves, 1989; Goto, 1982; Khanna and Palepu 2000b; Leff, 1978; Spulber, 1995)	**1. Positive performance findings:** • Korean chaebols (Chang & Choi (1988) • Chinese business groups (Keister, 1998)
2. Economic Ties Member firms are tied by ownership links. • ***Family***: Korean chaebols • ***Holding company***: Mexican groupos • ***Banks***: Japanese keiretsus • ***Pyramidal ownership***: Italy, India, and Indonesia	**2. Social function** Business groups are formed for such goals as legitimacy, prestige and power, and social solidarity. (Granovetter, 1995)	**2. Negative performance findings:** • Japanese keiretsus (Caves & Uekusa, 1976; Nakatani, 1984; Weistein & Yafeh, 1999) • Multi-country sample (Khanna & Yafeh, 1999)
3. Social Ties Member firms are tied by social or relational links. • ***Director interlocks***: Japanese keiretsus, Chinese business groups • ***Family ties***: Korean chaebols • ***Kinship ties***: Indian business groups • ***School ties***: Chinese and Korean business groups	**3. Political function** Business groups have an important role in fostering macroeconomic development. Some are founded or directed by the government, e.g. business groups in China, Korea, Indonesia, Latin American, and Pakistan. (Leff, 1978; Keister, 1998; Schwartz, 1992; Stark, 1996; White, 1974)	**3. Mixed performance findings:** *1.* ***Weak member firms benefit while strong member firms do not*** • Japanese keiretsus (Lincoln et al., 1996) • Korean chaebols (Chang and Hong, 2000) *2.* ***Performance contingent on the level of group's diversification*** • Chilean and Indian business groups Khanna & Palepu (2000a, 2000b) *3.* ***Performance depends on country differences*** • 14-countries sample (Khanna & Rivkin, 2001)
4. Institutional Ties Business groups are closely linked with external institutions. • ***Banks and financial institutions***: Japanese keiretsus and Taiwan's *guanxi giye* • ***Government***: Korean chaebols, Taiwan's *quanxi qiye*, Chinese business groups, Indonesian business groups	**4. Organizational function** Diversified business group as a multidivisional form structure that performs the function of cross-subsidization among member firms. (Chandler, 1982; Chang & Hong, 2000; Encaoua & Jacquemin, 1982)	

Figure 1
Overall Model

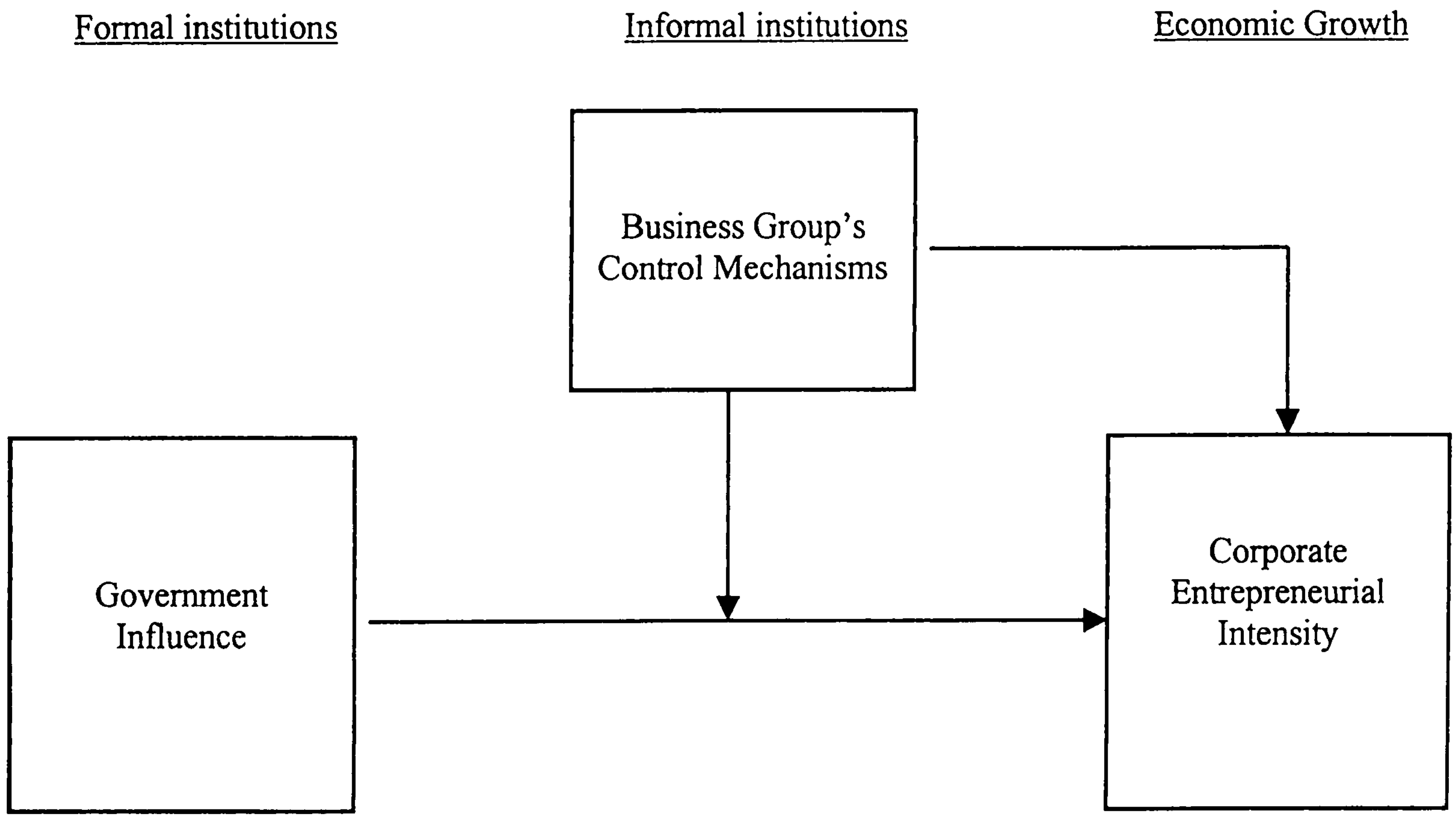


FIGURE 2
The Tiered Structure of Government System in China

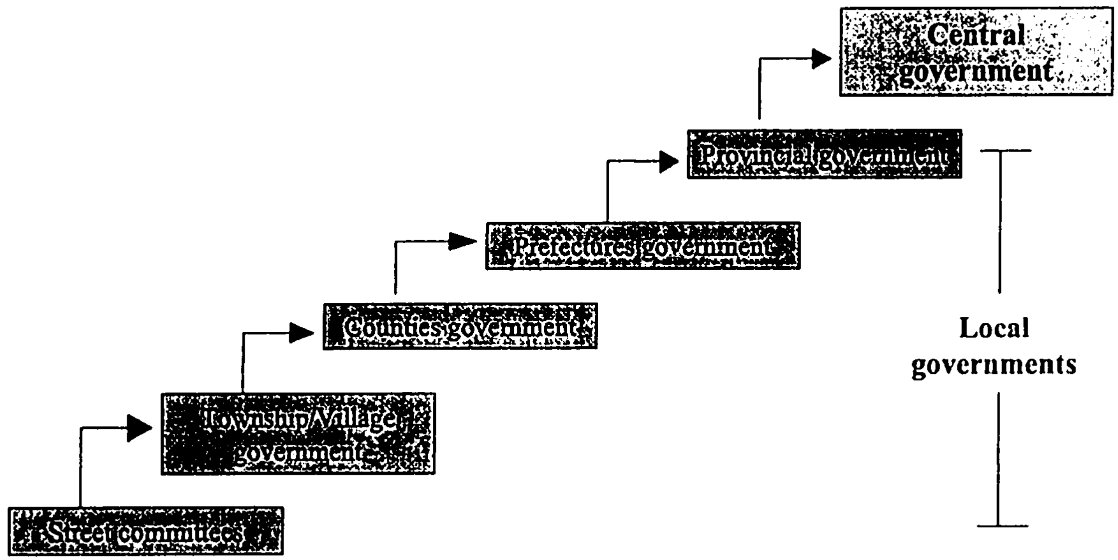
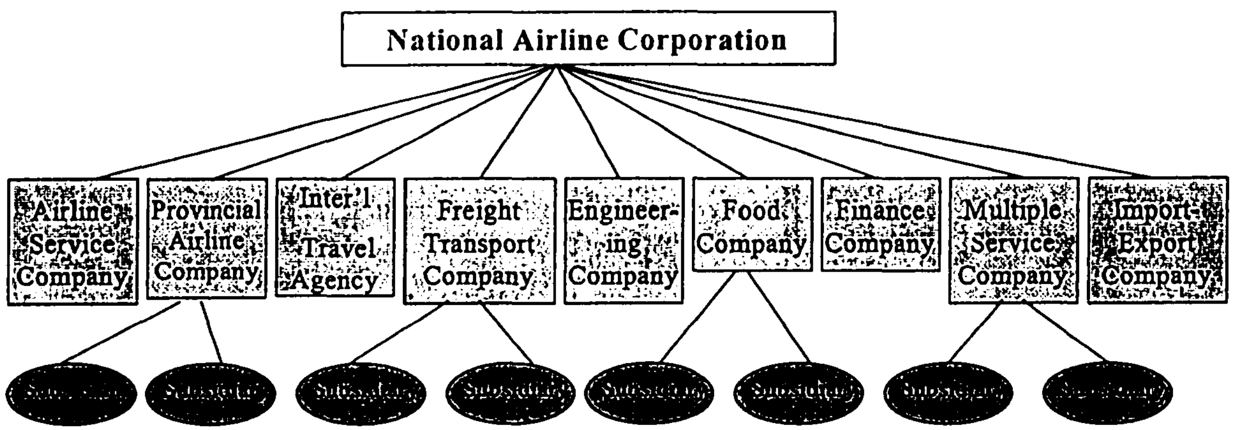


FIGURE 3
A Typical Chinese Business Group

Structure of the National Airline Group



(Adapted from Keister, 2000)

FIGURE 4
Empirical Framework

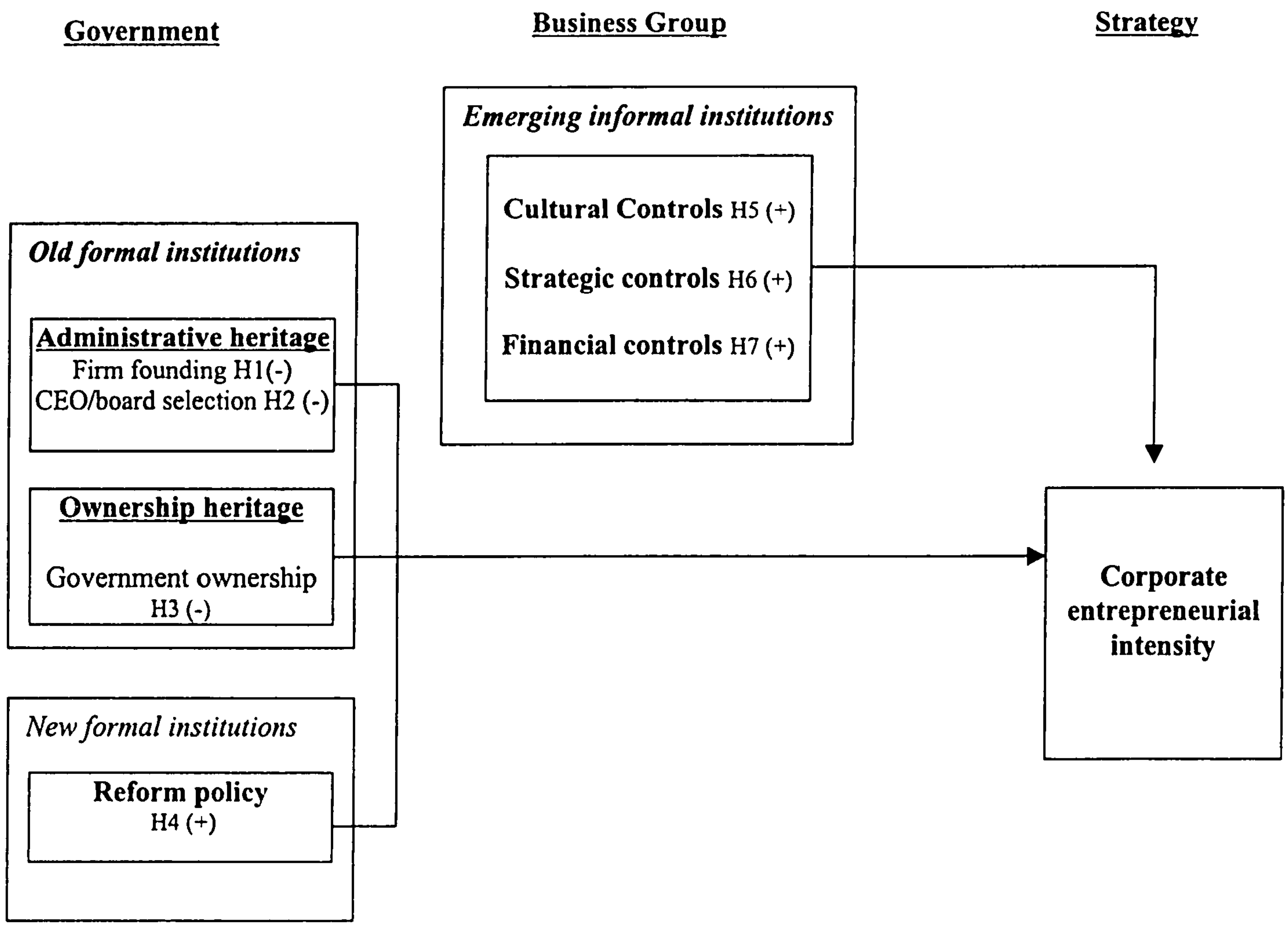


TABLE 2
Description of Measures

Constructs	Measures	Data Source	Cronbach's Alpha	Median r_{WG}
Dependent variable				
Corporate entrepreneurial intensity	7-point scale (1-Decreased to 7-Increased): In the last 3 years, estimate the average change in each of the following items: (1) Research and development expenditure (2) Number of new product introduced to markets (3) Plant and equipment investment (4) Marketing and distribution expenditure	Survey	0.81	
Independent variables				
Administrative heritage	(1) Firm founding: A dummy variable with 1 indicates that government has influence on the founding of member firms, and 0 indicates otherwise.	Survey		
	(2) CEO and board selection: 7-point scale (1-Little extent to 7-Large extent) Please indicate the extent to which government has influence on the following items: i. nomination of CEO ii. selection of members of the firm's board	Survey	0.68*	

* Since only two items are included in this scale, an inter-item correlation coefficient is computed instead of the Cronbach's alpha.

Constructs	Measures	Data Source	Cronbach's Alpha	Median r_{WG}
Ownership heritage	Government ownership: % of shares owned by government in business groups	Archival		
Government influence via reform policy	7-point scale (1-Little extent to 7-Large extent): Please indicate the extent to your firm is influenced by the following government (both central and local) policies: (1) Industrial development policy (2) Favorable taxation to a firm entering into a specific industrial sector (3) Using the size of a group's sales as an indicator of economic growth (4) Economic growth strategy	Perceptual	0.88	
Cultural controls	7-point self-developed scale (1-Little extent to 7-Large extent): Please evaluate the following items as to the extent they influence the member firm manager's performance: (1) Firm's reputation within the group. (2) Comply with a strong group culture. (3) Maintain trusting relationship within the group. (4) Maintain cordial relationships with each other in the group. (5) Participate in social activities with other member firm managers (6) Support other member firms in the group, even to sacrifice one member firm's benefit to support other member firms to achieve goals.	Perceptual	0.83	0.74

Constructs	Measures	Data Source	Cronbach's Alpha	Median r_{WG}
Strategic controls	7-point scale (1-Little extent to 7-Large extent) adopted from Hill, Hitt, and Hoskisson (1992): Please indicate the extent to which the group's executives understand and shape the effectiveness of the strategy formulated by member firm managers by evaluating the following statements: (1) The parent understands the industry in which the member firm competes (2) The parent understands the strategy of the member firm (3) The parent understands the strategy of the principal competitors of the member firm (4) The parent jointly develops strategic initiatives with the member firm	Perceptual	0.88	0.77
Financial controls	7-point scale (1-Little extent to 7-Large extent) adopted from Hill, Hitt, and Hoskisson (1992): Please indicate the extent to which the group executives use the following criteria to evaluate your managers' performance: (1) Return on assets (ROA) (2) Profit (3) Sales (4) Sales growth	Perceptual	0.83	0.86

Constructs	Measures	Data Source	Cronbach's Alpha	Median r_{WG}
Control variables				
Firm level:				
Firm size	Log of average number of employees from 1996 to 1998	Archival		
Firm performance relative to principal competitors	Combined average of three performance indicators: 7-point scale (1-Decreased to 7-Increased) In the last 3 years, estimate the average change in each of the following items: (1) Return on assets relative to principal competitors (2) Return on equity relative to principal competitors (3) Return on sales relative to principal competitors	Perceptual	0.97	
Current ratio	Average of total assets divided by total liabilities from year 1996 to 1998	Archival		
Business group level:				
Group's product diversification	4-digit entropy measure (Jacquemin & Berry, 1979; Palepu, 1985): Entropy measure $= \Sigma P_j \times \ln(1/P_j)$	Archival		
Group's geographic dispersion	Number of geographical regions member firms are located divided by number of member firms in the business group	Archival		
Group performance	Changes in return on sales in the last three years	Perceptual		

TABLE 3
Confirmatory Factor Analysis of Dependent and Independent Variables

Constructs	Variables	Factor loadings (standardized)	Composite reliability	Average variance extracted
Corporate entrepreneurial intensity	R&D expenditure	0.85	0.82	0.54
	No. of new products	0.58		
	Plant & equip. investment	0.68		
	Marketing & dist. exp.	0.80		
Administrative heritage	Founding dummy	1.00		
	CEO selection	0.84	0.68	0.53
	Board member selection	0.60		
Government heritage	State ownership	1.00		
Government reform policy	Industrial policy	0.84	0.88	0.66
	Taxation policy	0.83		
	Sales growth policy	0.75		
	Economic strategy policy	0.82		
Cultural controls	Reputation	0.52	0.83	0.47
	Comply to culture	0.65		
	Trusting relationships	0.86		
	Cordial relationships	0.82		
	Social activities	0.68		
	Support each other	0.48		
Strategic controls	Understand firm's industry	0.85	0.89	0.66
	Understand firm's strategy	0.88		
	Understand competitors' strategy	0.81		
	Develop strategic initiatives	0.70		
Financial controls	Return on assets	0.51	0.83	0.56
	Profit	0.59		
	Sales	0.88		
	Sales growth	0.94		
Model fit	Chi square	1306.3	(df=273, p<0.001)	
	GFI	0.91		
	CFI	0.91		
	RMSEA	0.06		
	Standardized RMSR	0.04		

TABLE 4
Descriptive Statistics and Correlations

	Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	VIF
1.	Entrepreneurial growth intensity	4.99	1.34	1.00														
2.	Firm founding	0.36	0.48	-.07*	1.00													1.09
3.	CEO/board selection	1.36	0.72	-.03	.20**	1.00												1.10
4.	State ownership	0.77	0.28	-.09**	.15**	.03	1.00											1.12
5.	Reform policy	3.23	1.91	.08**	.12**	.17**	.02	1.00										1.06
6.	Cultural controls	5.04	1.34	.19**	-.04	-.06*	-.07*	.04	1.00									1.06
7.	Strategic controls	5.30	1.45	.12**	-.03	-.02	-.01	.05	.46**	1.00								1.03
8.	Financial controls	5.84	1.27	.21**	-.01	-.04	-.04	.13**	.39**	.33**	1.00							1.06
9.	Log of employees	6.30	1.95	.10**	.13**	.16**	.14**	.12**	-.06*	.02	.04	1.00						1.10
10.	Current ratio	2.98	19.60	-.01	-.03	.02	.00	-.04	.04	.02	-.12**	-.08**	1.00					1.05
11.	Relative performance	4.53	1.59	.49**	-.07*	-.04	-.08**	.05	.20**	.13**	.12**	-.08**	.06*	1.00				1.01
12.	Group's product diversification	0.83	0.51	.04	-.01	-.06*	-.20**	.05*	-.04	-.04	.05	.10**	-.02	.01	1.00			1.07
13.	Group's geographic dispersion	0.11	0.26	.02	.04	-.05	.14**	-.03	-.08**	-.04	-.03	.08**	-.01	.01	-.01	1.00		1.04
14.	Group's ROA	4.64	1.67	.11**	-.09**	-.09**	-.12**	.02	.12**	.10**	.09**	-.13**	.04	.18**	.02	-.08**	1.00	1.07

*Correlation is significant at the 0.05 level (1-tailed).
**Correlation is significant at the 0.01 level (1-tailed).
N=992

TABLE 5
Results of the Hierarchical Regressions

Dependent Variable: Corporate entrepreneurial intensity					
	Model 1	**Model 2 Base model**	**Model 3**	**Model 4**	**Model 5**
Controls variables:					
Log of total number of employees	.14***	.15***	.16***	.15***	.15***
ROI, ROS, ROA relative to competitors	.50***	.49***	.47***	.48***	.47***
Current ratio	- .03	- .02	- .03	- .03	- .01
Group product diversification	.03	.01	.01	.01	.00
Group geographic dispersion	.01	.02	.03	.02	.02
Group ROA	.04	.03	.02	.02	.02
Independent variables:					
Government influence					
Firm founding		- .05†	- .05†	- .05†	- .05
CEO and board selection		- .03	- .02	- .02	- .02†
Ownership		- .07*	- .06*	- .07*	- .06*
Policy		.02†	.04	.05†	.03
Group's control mechanisms					
Cultural controls			.10***		
Strategic controls				.05†	
Financial controls					.14***
Model R^2	.263	.273	.283	.276	.291
Adjusted R^2	.259	.266	.275	.267	.283
Change in R^2	.263	.010	.010	.003	.018
Model F Statistic	58.780***	6.866***	5.203***	3.917***	36.545***
F-Statistic for Change	58.780***	3.243***	13.63***	3.352†	24.364***

N=992. *** p<.001, ** p<.01, * p<.05, † p<.10.
β estimates are standardized.

TABLE 6
Results of the Hierarchical Regressions
Interaction Effects: Cultural Controls

Dependent Variable: Corporate entrepreneurial intensity	Model 3 Base Model	Model 6 Founding	Model 7 CEO/board	Model 8 Ownership	Model 9 Policy
Controls variables:					
Log of total number of employees	.16***	.16***	.16***	.16***	.16***
ROI, ROS, ROA relative to competitors	.47***	.47***	.47***	.47***	.47***
Current ratio	- .03	- .03	- .03	- .03	- .03
Group product diversification	.01	.01	.01	.01	.01
Group geographic dispersion	.03	.02	.03	.03	.03
Group ROA	.02	.02	.02	.02	.02
Independent variables:					
Government influence					
Firm founding	- .05†	- .08†	- .05†	- .05†	- .05†
CEO and board selection	- .02	- .05	- .03	- .02	- .02
Ownership	- .06*	- .14*	- .06*	- .06*	- .07*
Policy	.04	.02	.05†	.05†	.05*
Group's control mechanisms					
Cultural controls	.10***	.11***	.10***	.10***	.10***
Strategic controls					
Financial controls					
Interaction Terms:					
Founding x Cultural Controls		- .05*			
CEO/board x Cultural Controls			- .04		
Ownership x Cultural Controls				-.009	
Policy x Cultural Controls					-.06*
Model R^2	.283	.286	.285	.283	.283
Adjusted R^2	.275	.277	.276	.274	.275
Change in R^2	.010	.003	.002	.000	.010
Model F Statistic	35.203***	32.699***	32.487***	32.249***	35.203***
F-Statistic for Change	13.63***	3.980*	2.158	.106***	13.63***

N=992. *** p<.001, ** p<.01, * p<.05, † p<.10.
β estimates are standardized.

TABLE 7
Results of the Hierarchical Regressions

Interaction Effects: Strategic Controls

Dependent Variable: Corporate entrepreneurial intensity	Model 4 Base Model	Model 10 Founding	Model 11 CEO/board	Model 12 Ownership	Model 13 Policy
Controls variables:					
Log of total number of employees	.15***	.15***	.15***	.15***	.15***
ROI, ROS, ROA relative to competitors	.48***	.48***	.48***	.48***	.48***
Current ratio	- .03	- .03	- .03	- .03	- .03
Group product diversification	.01	.01	.01	.01	.01
Group geographic dispersion	.02	.02	.02	.02	.02
Group ROA	.02	.03	.02	.02	.02
Independent variables:					
Government influence					
Firm founding	- .05†	- .05†	- .05†	- .05†	- .05†
CEO and board selection	- .02	- .02	- .02	- .03	- .03
Ownership	- .07*	- .07*	- .07*	- .07*	- .07*
Policy	.05†	.05†	.05†	.05†	.05†
Group's control mechanisms					
Cultural controls					
Strategic controls	.05†	.05†	.05†	.05†	.05†
Financial controls					
Interaction Terms:					
Founding x Strategic Controls		.001			
CEO/board x Strategic Controls			.012		
Ownership x Strategic Controls				- .04	
Policy x Strategic Controls					- .02
Model R^2	.276	.276	.276	.277	.276
Adjusted R^2	.267	.267	.267	.268	.267
Change in R^2	.003	.000	.000	.001	.003
Model F Statistic	33.917***	31.059***	31.081***	31.265***	33.917***
F-Statistic for Change	3.352†	.001	0.189	3.352†	3.352†

N=992. *** p<.001, ** p<.01, * p<.05, † p<.10.
β estimates are standardized.

TABLE 8
Results of the Hierarchical Regressions

Interaction Effects: Financial Controls

Dependent Variable: Corporate entrepreneurial intensity	Model 5 Base Model	Model 14 Founding	Model 15 CEO/board	Model 16 Ownership	Model 17 Policy
Controls variables:					
Log of total number of employees	.15***	.15***	.15***	.15***	.15***
ROI, ROS, ROA relative to competitors	.47***	.47***	.47***	.47***	.47***
Current ratio	- .01	- .00	- .01	- .01	- .01
Group product diversification	.00	.00	.00	.00	.00
Group geographic dispersion	.02	.02	.02	.02	.02
Group ROA	.02	.02	.02	.02	.02
Independent variables:					
Government influence					
Firm founding	- .05†	- .05†	- .05†	- .05†	- .05†
CEO and board selection	- .02	- .02	- .02	- .02	- .02
Ownership	- .06*	- .06*	- .06*	- .06*	- .06*
Policy	.03	.03	.03	.03	.03
Group's control mechanisms					
Cultural controls					
Strategic controls					
Financial controls	.14***	.14***	.14***	.14***	.14***
Interaction Terms:					
Founding x Financial Controls		- .09***			
CEO/board x Financial Controls			- .01		
Ownership x Financial Controls				- .05†	
Policy x Financial Controls					- .00
Model R^2	.291	.299	.291	.293	.291
Adjusted R^2	.283	.290	.282	.284	.283
Change in R^2	.018	.008	.000	.002	.000
Model F Statistic	36.545***	34.775***	36.545***	33.777***	36.545***
F-Statistic for Change	24.364***	11.149***	.238	2.648†	24.364***

N=992. *** p<.001, ** p<.01, * p<.05, † p<.10.
β estimates are standardized.

FIGURE 5

Interaction plot: firm founding and cultural controls

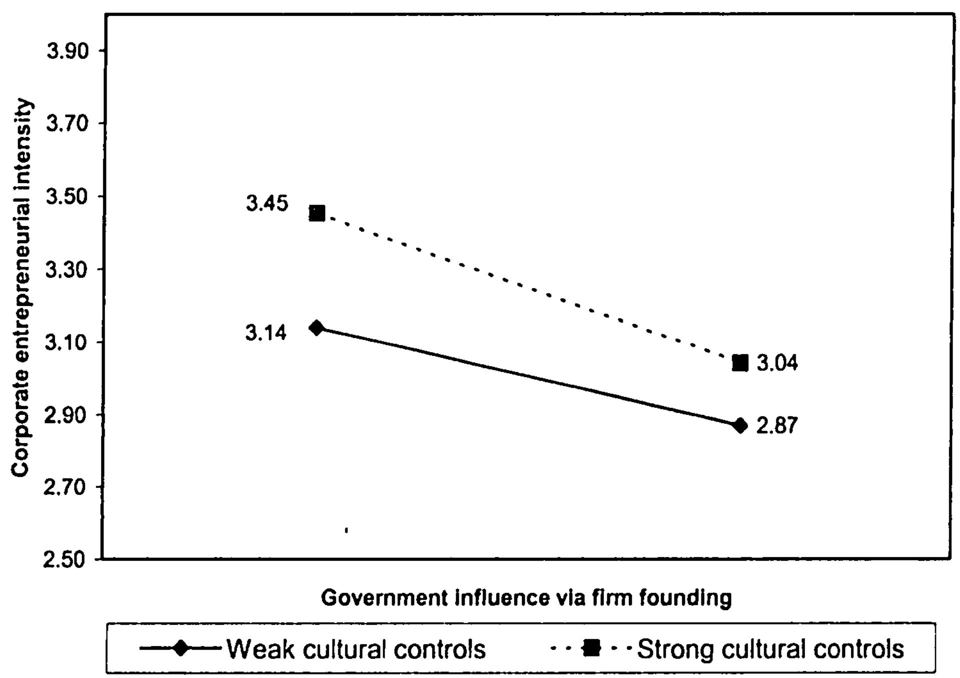


FIGURE 6

Interaction plot: reform policy and cultural controls

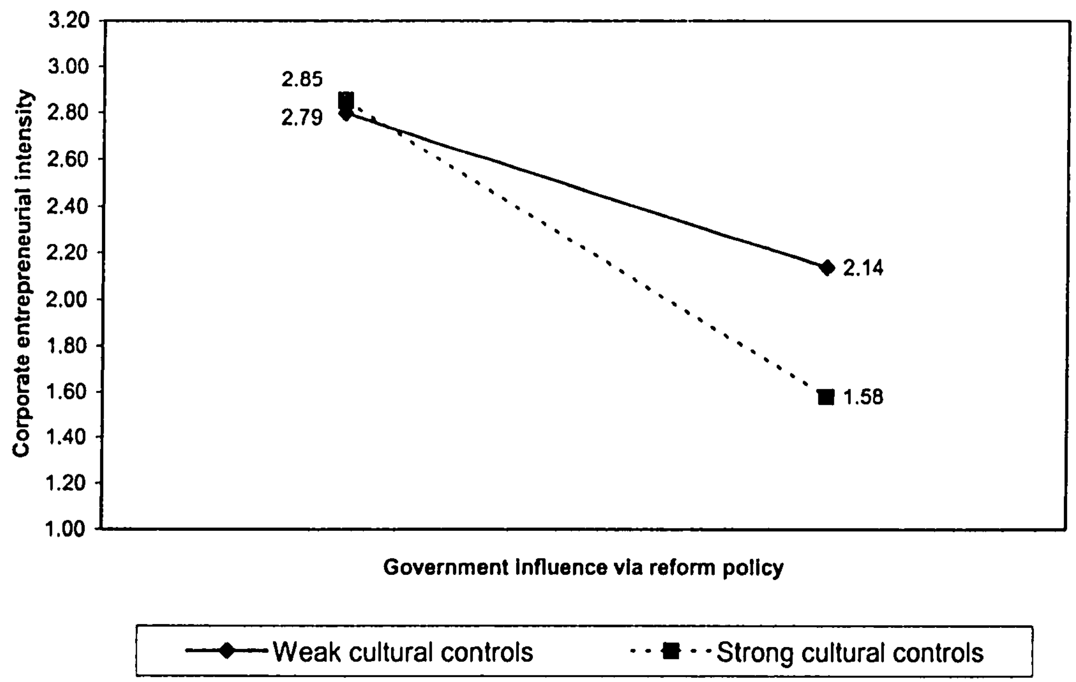


FIGURE 7

Interaction plot: firm founding and financial controls

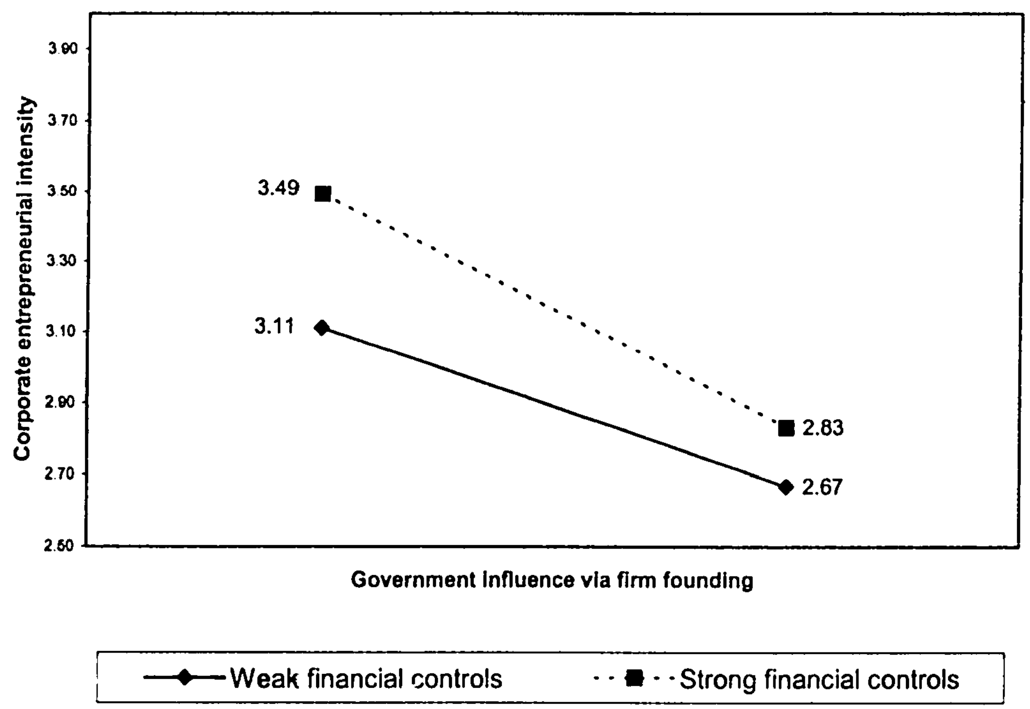


FIGURE 8

Interaction plot: state ownership and financial controls