Ownership Structure, Diversification Strategy and Firm Performance

--An empirical study on China's listed companies

Wu, Zhijian

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Wu, Zhijian
(B.E. Fudan University)

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SUMMARY

Corporate governance has been a subject of intensive research efforts by scholars but with a distinct and overwhelming focus on U.S. and European firms. Using agency theory as a theoretical basis, researchers have studied the implication of ownership structure and diversification strategy on a firm's performance in developed economies. Such studies in emerging market economies are comparatively limited. I integrate existing research on ownership structure, diversification strategy and firm performance in a study that looks at these issues for firms listed on China's Shanghai and Shenzhen stock markets. The setting of China provides good opportunities to test the robustness of previous findings in a unique and changing institutional setting. I explore these issues using traditional measures of ownership, diversification and performance along with Rumelt's classification of diversification strategy.

The data to be tested consist of all the China's listed companies from 1991 to 2002, as compiled from multiple archival sources. I discuss both the outcomes and evolution patterns of these firms' diversification strategies in this thesis.

My study has four major streams of findings. First, I find that ownership concentration is negatively related to firm diversification. In addition, I find that state shareholding is also negatively related to firm diversification. Secondly, I find a positive relationship between China's firms' diversification and performance, which is against the conventional wisdom derived from observations of firms in the Western

countries (Servaes, 1996). The third set of my findings is about the contingent effect of ownership structure on the relationship between firm diversification and firm performance. I find that legal person moderates the relationship between firm diversification and firm performance (Figure 7-2). Here the moderating effect means that Legal Person Shareholding makes the slope of the inverted U-shape curve between firm diversification and firm performance more flat. Finally, I did not find a significant performance gap between firms of various diversification categories based on Rumelt's scheme, but I find Conglomerates and Single Business firms to show much better performance than Dominant Unrelated firms. In addition, I find a general trend towards higher levels of firm diversification for all the China's listed companies through the decade after the two stock markets were established.

Key words: corporate governance, ownership structure, diversification strategy

CHAPTER 1

INTRODUCTION

1.1 Background

Corporate governance has been the focus of decades of research (Ravenscraft & Scherer, 1987; Hoskisson & Turk, 1990; Morck et al., 1988; Shelifer & Vishny, 1997). This research stream emerged with the modern form of corporation in which there was a separation of finance (ownership) and management of firms. This separation may be due to the fact that as the scale of firms kept growing, the owner of the firm began to lack expertise or time to monitor its daily operations. Therefore, professional managers were introduced into the management and supervised the operation of the firm on the behalf of the owner (Coase, 1937). Agency theory has thus developed to deal with the agency problems that arise when an owner allocates management rights to professional managers.

Although the research of corporate governance and agency problem has been conducted in America and Europe for decades, scholars have given little attention to this issue in emerging economies until recently. The global privatization trend has directly and indirectly led to the emergence of increasing numbers of private corporations in many transitional economies. Additionally, many governments of

emerging markets launched reforms of state-owned enterprises (SOEs) and led these firms toward the form of so-called modern companies, which are very close to the organizational and management structure of firms in the West. Researchers looking at issues pertinent to these firms have grounded their work in the extensive studies on the topic of corporate governance completed in the context of developed economies (Jensen and Meckling, 1976; Fama, 1980; Bulow & Rogoff, 1989). Despite this grounding, analogous research on transitional economies still remains relatively limited (Xu and Wang, 1997).

Currently, increasing numbers of scholars are beginning to focus research efforts on China, as it is one of the largest and fastest growing markets in the world. Aside from the rapid growth of China and its continued integration into the world economy, its unique emerging institutional infrastructure provides substantial research opportunities to deepen our understanding of core issues in firm-level and corporate strategy (Xin and Pearce, 1996; Luo and Tan, 1997; Lins, 2002; Sun et al., 2002).

I situate my study in the corporate governance and ownership structure literature (Berle and Means, 1932; Demsetz and Lehn, 1985), as China's transition to a market economy has resulted in several ownership identities attaining a prominence not typically seen in Western European and North American firms. This emergence of unique ownership identities allows us to bridge research on the ownership concentration effect to the ownership identity effect. In developed economies, researchers have offered conflicting arguments on the relationship between ownership

concentration and a firm's performance, including positive, negative and insignificant effects (Denis and Denis, 1994; McConnell and Servaes, 1990; Leech and Leahy, 1991; La Porta, et al., 1999). Scholars have also uncovered that different types (identities) of shareholders exert significantly different effects on corporate performance. A general finding, for example, is that state shareholdings tend to be inferior to private shareholdings and institutional shareholdings for promoting corporate performance, with limited exceptions (Shapiro and Willing, 1990; Prowse, 1994; Hufft, 1998).

In addition, I incorporate research on the ownership structure with that on a firm's diversification strategy. Firm diversification is important because managers have considerable discretion and may not always follow optimal decision processes as based on the maximization of shareholders' interests (Child, 1972; Hitt & Tyler, 1989). There are various factors that will lead management to diversify, which also have distinct implications for firm performance. Scholars have contended that ownership structure, market forces, government intervention, management of external relations and skill building can each possibly become a motive for a firm to diversify (Tan & Li, 1996; Li & Tse, 1997; Li et al., 1998). The relationship between ownership structure and diversification strategy also has important implications for a firm's performance (Baysinger & Hoskisson, 1990; Hoskisson & Turk, 1990). Scholars argue that firms pursuing a related diversification strategy tend to outperform those following an unrelated diversification strategy (Zhao & Luo, 2002).

Given the above, I have derived several reasons as to why there are benefits to studying the mutual relationship between ownership structure, firm diversification and firm performance in China.

(1) The listed companies in China are tremendously diversified. Based on Rumelt's diversification scheme (Rumelt, 1974), I find that more than forty percent of Chinese listed companies fall into the category of Un-related/Conglomerate (Table 6-11). This figure is rather eye-opening when I compare it to the historical levels of diversification in the United States and other developed countries (Rumelt, 1974). Consequently, I want to know under what circumstance companies have evolved into a diversified situation, what are the motivations for these companies to diversify, and what are the performance implications of their diversification strategies.

(2) In China, there is a pervasive existence of state shareholding (Table 3-1). This is very different from the essential non-existence of state shareholding in developed countries such as the United States. I would like to study the different roles that state shareholding has played in influencing firms' strategy and performance.

(3) The transition of Chinese firms' ownership has been rapid, as facilitated by the creation of legal person ownership. The emergence and existence of legal person shareholding is consistent with the transition stage of China's economic situation and institutional environment. Legal person ownership functions as a bridge between state shareholding and private shareholding to

help smooth the economic transition of China. I want to study the role of such a temporary type of shareholding.

(4) The diversification evolvement for Chinese listed companies is much more rapid than those companies in the United States. For Chinese listed companies, they either do not choose to diversify, or choose to diversify rapidly to a high level (see Chapter 6 for details). I would like to study whether the context matters—compared to developed countries, China is under a transition stage and its firms seem to be behaving differently from those in U.S. or Japan.

1.2 Contribution

In this thesis, I will identify several areas in which new research could be completed, to address issues and questions that remain unresolved in the existing literature.

(1) Scholars have done quite an amount of research on diversification in emerging economies. However, there is still potential for research to improve our understanding of this phenomenon in developed countries and developing countries. The emerging phenomenon of diversification in developing countries heightens the need to identify the reasons for the emergence of this phenomenon (Why do the firms choose to diversify?) and its consequence (How does this strategy affect a firm's performance?) It would be even more interesting to study the discrepancies of the effects of diversification between developed countries and developing countries, perhaps using an institutional economics approach.

(2) Studies on a firm's ownership structure in emerging economies have produced ambivalent sets of results. However, few studies have linked these firms' diversification strategy with the transition of a firms' ownership structure. By linking the diversification strategy to ownership structure, I would hope to understand better the motivations, consequences and implications of firm diversification on firm performance from a new strategic perspective, which would link the macro effect (China's institutional transition environment) and micro effect (firm ownership transition and diversification strategy) together.

(3) In this thesis, I develop an analysis of China's listed firms' diversification strategies that is consistent with Rumelt's diversification classification. I find that China's listed companies are undergoing a process of evolution during the period of 1991 to 2002, the details of which will be discussed in Chapter six. Additionally, I try to identify the factors that influence a firm's strategy of diversification, such as institutional change, ownership structure, and so forth.

(4) Using Rumelt's classification which was built based on U.S. firms; I have found a different diversification trend of China's firms. Compared to developed countries, China is under a transition stage and its firms are behaving differently from those in U.S. or Japan. This result should stimulate research on the implications of these trends for firm performance and other possible future evolution.

In my thesis, I try to answer the above questions. I will establish an empirical model to test the data on China's listed companies, and try to make contributions in both theoretical and empirical respects.

1.3 Findings

My study has four major streams of findings. The first stream is about the relationship between ownership structure and firm diversification. I find that ownership concentration is negatively related to firm diversification. In addition, I find that state shareholding is also negatively related to firm diversification. Secondly, I find a positive relationship between China's firms' diversification and performance, which is against the conventional wisdom in the Western countries (Servaes, 1996). The third set of my findings is about the contingent effect of ownership structure on the relationship between firm diversification and firm performance. I find that legal person moderates the relationship between firm diversification and firm performance (Figure 7-2). Here the moderating effect means that Legal Person Shareholding makes the slope of the inverted U-shape curve between firm diversification and firm performance more flat. Finally, I did not find significant performance gaps between firms of various diversification categories based on Rumelt's scheme, but I find that Conglomerates and Single Business firms show much better performance than Dominant Unrelated firms. In addition, I find a general trend towards higher levels of firm diversification for all the China's listed companies through the decade after the two stock markets were established.

1.4 Organization

There are eight chapters in this thesis. The chapters are organized as follows.

Chapter 2 provides a review of research on the relationships between ownership structure, diversification strategy and firm performance. Chapter 3 reviews the literature on the relationship between ownership structure, diversification strategy and firm performance in both emerging economies and China. In Chapter 4, I establish several hypotheses, which predict the relationships between ownership structure, a firm's diversification strategy and firm performance in the China context. Chapter 5 describes the data and the methodology I use to test the hypotheses. In Chapter 6, I introduce the definitions, concepts and methodology of Rumelt's diversification scheme, with a specific description of how I used his classification scheme in the context of China. Chapter 7 provides the results of the empirical tests, which is based on the data described in the previous chapter. In chapter 8, I discuss the results and implications, and conclude the thesis with a discussion of its contributions and the introduction of some ideas about the potential for future research.

CHAPTER 2

LITERATURE REVIEW

This chapter provides a review of research on the mutual cross-relationships among ownership structure, diversification strategy and firm performance. There are five sections in this chapter. The first section reviews agency theory as the theoretical basis of my thesis. The second section covers studies concerned with the relationship between ownership structure and firm performance. Section three and section four introduce research on the antecedents and consequences of a firm's diversification strategy. Each of the first four sections is composed of theoretical studies and empirical studies. Finally in section five I summarize my argument.

2.1 Agency Problem

In the study of the relationships between ownership structure, firm diversification strategy and firm performance, agency theory has been the foundation for most studies. I first review work related to the agency problem.

The agency theory was fully developed by Coase (1937), Jensen and Meckling (1976), and Fama and Jensen (1983). Agency theory was developed on the assumption of economically rational human behavior and co-emerged with the separation of management and finance. In modern public corporations, shareholders have the right

to control and the right for dividend in return for the ownership. The owners of a firm, however, may lack the essential knowledge or expertise to manage the operations of a firm efficiently. Therefore, owners introduce professional managers to carry on the daily operations of the corporation. The owners need the managers' expert and professional skills to effectively manage the firm and make profits. The managers need the owner's funds to put his ability to good use. The agency problem comes out when the owners have difficulty assuring that their funds are not expropriated by the managers, such as being not used for the purpose of profit maximization (Shleifer & Vishny, 1997).

Managers with significant control rights over the allocation of investors' funds may expropriate them. In general, managers can expropriate the investor's funds in two ways: perquisite consumption and entrenchment. Perquisite consumption refers to the manager's cost-enhancing activities to increase his non-salary income and other on-the-job consumption (Gedajlovic & Shapiro, 1998). Entrenchment refers to the manager's activities to entrench himself and ensure his management position in the cost of firm's profitability (Walsh & Seward, 1990). The pyramid scheme is another good example of expropriation. A pyramid scheme is established by continuously joining people, who paid credits to those who joined earlier into the hierarchy and expect to obtain payments from those who joined afterward. In many pyramid schemes, the top management ends up absconding with the money. Managerial expropriation of funds can also take other forms than just taking the cash out. For example, managers may book the most luxurious hotel and enjoy the most expensive

flight during a business trip. Sometimes the above situations may result in poor consequences for shareholders. The owners of a firm must have a strategy to deal with these potential agency problems.

Existing work suggests that agency problems can be resolved through several approaches. First, scholars have suggested that owners grant the manager a highly contingent, long term incentive contract ex ante to align his interests with those of investors. Just as Shleifer and Vishny argued, "in this way, incentive contracts can induce the manager to act in investors' interest without encouraging blackmail, although such contracts may be expensive if the personal benefits of control are high and there is a lower bound on the manager's compensation" (Shleifer & Vishny, 1997). Incentive contracts can take a variety of forms, including share ownership, stock options, or a threat of dismissal if the firm's performance is under the expectation (Jensen & Meckling, 1976; Fama, 1980).

Second, the agency problem can be addressed by methods other than supervision. For example, people sometimes carry on the promise even if they are not forced to do so because they want to keep their reputation (Kreps, 1990). In a business world where information is highly circulated, a manager will have to behave himself for the future preparation if he wants to raise capital or abandon his occupation in favor of another. On the other side of the coin, it is also argued that reputation restriction may cause a backward recursion problem (Bulow & Rogoff, 1989). For example, when the future possible benefits for the manager is lower than what the manager is able to

expropriate from the current investor, rationally the manager may choose to cheat the firm owner.

Third, agency problems can be solved through an effective principal monitoring of agents (Beatty & Zajac, 1994; Mallette & Fowler, 1992; Zahra & Pearce, 1989; Zajac & Westphal, 1994). Shareholders can resort to legal protection for the purpose of supervision. One of the most important legal rights shareholders have is the right to vote. Shareholders have the legally protected right to vote for important strategic decisions of a firm such as merger and acquisition and the election of board directors (Manne, 1965). It should be noted that the effectiveness of voting rights depends on the legal environment. In countries where the legal enforcement is weak and the protection of minority shareholder is frail, managers may not be constrained or threatened that much. For example, in China it is requested that shareholder should be present on shareholder meeting to exercise the voting rights. Some managers or director candidates threatened the shareholders and compelled them not to go to the meeting (Shleifer & Vishny, 1986).

Scholars have also recognized that effective governance mechanisms, such as boards of directors (BODs), managerial labor markets, and takeover threats, can also be effective in resolving agency problems (Bhide, 1994; Franks & Mayer, 1993; Prowse, 1994; Walsh & Seward, 1990).

2.2 Ownership Structure and Firm Performance

2.2.1 Ownership Structure and Firm Performance in Developed Countries

Numerous studies have been done to explore the relationship between a firm's ownership structure and its performance. Generally, scholars have studied the effect of ownership structure from two perspectives: ownership concentration and ownership identity.

Many scholars follow Berle and Means' (1932) hypotheses about widely dispersed ownership to further the research in the field of ownership concentration. For example, Shelifer and Vishny (1997) argued that ownership concentration has a two-faced effect on corporate performance. On one hand, in a firm that has many owners of small shares of its equity and no owner of large shares, most owners cannot be involved in the ongoing management of the firm. Additionally, minority shareholders may be discouraged to keep monitoring the firm's management by a free-rider problem: the free-rider can enjoy the benefits as long as other shareholders exercise the monitoring responsibility.

On the other hand, there are several potential costs of having controlling shareholders in a firm such as inefficient expropriation of a firm's assets by block-holders and the possible expropriation on minority shareholders. Not surprisingly, empirical studies about the relationship between ownership concentration and firm performance have yielded conflicting results. While Berle and Means (1932) found an inverse relationship between ownership concentration and corporate performance, Demsetz

and Lehn (1985) used a 1976-1980 sample of 511 U.S. firms to find no relationship between the two. Denis and Denis (1995) also found a similar result of an insignificant relationship between ownership concentration and firm performance.

In contrast, several other scholars have found a positive ownership concentration effect. Using a database of 470 U.K. firms, Leech and Leahy (1991) found that a company's market value to sales ratio was greater for companies with concentrated ownership. La Porta, Lopez, and Shleifer (1999) examined the largest firms in 49 countries and found a connection between higher concentration and higher corporate value. In addition, other scholars have found a non-monotonous relationship between shareholding concentration and a firm's value. McConnell and Servaes (1990) found that Tobin's Q increased with insider shareholdings to a point of 40 percent of total shares, and then began to decrease with increasing ownership concentration.

Scholars also find that different kinds of shareholders could exert significantly different effects on corporate performance. Shapiro and Willing (1990) proposed that as government shareholdings have obligations to society such as social welfare and employment rates, they may pursue these goals at the expense of corporate profitability. In contrast, institutional investors have strong economic incentives and an information advantage to monitor management. However, Prowse (1994) suggested that institutional investors may be too myopic and only concentrated on short-term interests. Empirically, Hufft (1998) categorized 111 large U.S. firms into

manager-controlled, family-controlled and financial institution-controlled firms and found that family-controlled firms had the best performance.

2.2.2 The Recent Trend of Privatization and Agency Problem in Emerging Economies

Many countries in the world have experienced a shift from state socialism to capitalism during the recent decades. Governments are reported to have expended great efforts to privatize those un-profitable SOEs for the purpose that these corporations would perform better under private control. Actually, it is reported that more than 80 countries have launched ambitious efforts to privatize their state-owned enterprises. Since the 1980s, more than 2000 SOEs have been privatized around the world (Kikeri, Nellis & Shirley, 1992). The volume of privatization has increased in emerging economies from U.S. $8 billion in 1990 to U.S. $65 billion in 1997, and peaked to U.S. $ 100 billion in 1998 (OECD, 2001). As the privatization efforts in emerging economies result in the transfer of ownership from the state to private owners, it can thus create agency problems which are quite similar to that of the developed countries (Eisenhardt, 1989 Jensen & Meckling, 1976).

2.2.3 Addressing the Agency Problem from the perspective of Ownership

One important approach to control the agency problem is through the development of appropriate ownership structures (Gedajlovic & Shapiro, 1998; Walsh & Seward, 1990). The level of ownership concentration and the identity of different types of ownership are two major aspects of ownership structure.

As to the concentration of ownership, researchers contend that high levels of ownership concentration can lead to effective monitoring and thus can reduce the agency problem (Berle & Means, 1932; Hill & Snell, 1989). Scholars have provided numerous explanations for the positive effects of concentrated ownership. Demsetz (1983) argues that concentrated owners have fewer costs to effectively monitor the managers than dispersed owners so that firms with concentrated ownership should outperform firms with distributed ownership. Boeker (1992) contends that as there are fewer owners with whom to coordinate, high ownership concentration is associated with lower coordination costs. Hill and Snell (1989) contended that concentrated owners have the power to demand information from management so that high ownership concentration can reduce information asymmetry between principals and agents. Specifically, investors with significant equity stakes can use their voting power or the threat to sell to monitor the management. Diffused ownership, however, leads to weak monitoring because it is associated with higher coordination costs and it has a more serious problem of information asymmetry (Hoskisson & Turk, 1990; Tosi & Gomez-Mejia, 1994; Williamson, 1975).

Owners can take numerous identities such as government shareholdings, institutional shareholdings, individual shareholdings, manager shares, employee shares and so on. As to the identity of ownership in most emerging economies, the majority of shareholders are confined to governments and local institutions (Xu & Wang, 1997). As to the government ownership, some scholars argue that in competitive markets without significant externalities, government ownership is inferior to private

ownership (Boycko, Shleifer & Vishny, 1996; Dewenter & Malatesta, 2001) This is generally explained by a government's choice of social and political policy goals over profit maximization, a government's unwillingness to lay off the employees to cut the cost (because of the consideration of unemployment rate), the government's lack of expertise and high transaction cost due to bureaucracy (Aharoni, 1982; Boycko, Shleifer & Vishny, 1995; Majumdar, 1998).

Several empirical studies support the proposition that government ownership is less efficient than private ownership. Boardman (1989) compared the performances of industrial state-owned enterprises, mixed enterprises, and private corporations among the 500 largest non-US industrial firms and indicated that state-owned enterprises performed substantially worse than similar private corporations. Megginson, Nash and Van Randenborgh (1994) compared the pre- and post-privatization financial and operating performance of 61 companies which experienced partial or full privatization in 18 countries and 32 industries during the period 1961 to 1990 and documentd strong performance improvements after privatization. In contrast, other studies also suggest that government ownership is not necessarily less efficient than private ownership. Caves and Christensen (1980) compare the postwar productivity performance of the Canadian National and Canadian Pacific Railroads and find no evidence of inferior performance by the government-owned railroad. Scholars have also found similar results in different contexts such as U.S., Japan and West Europe (Kay & Thompson, 1986; Wortzel & Wortzel, 1989; Martin & Parker, 1995; Kole & Mulherin, 1997)

2.3 Antecedents of Diversification: Incentive

Firm diversification is very important because managers have considerable discretions and may not always follow optimal decision processes based on the shareholders' interest (Child, 1972; Hitt & Tyler, 1989). Here in my study I review some most important diversification incentives which have been extensively studied in the literature. I divide these incentives into two broad categories: external and internal incentives. External incentives include government policy and market failure. Internal incentives include uncertainty of future cash flows, managerial motives and ownership structure.

2.3.1 External Incentives: Government Policy and Market Failure

Government policy and market failure are the two important external incentives for a firm to diversify. Anti-trust and tax laws are among the government policies that can motivate a firm to diversify (Gilson, Scholes & Wolfson, 1988). For example, Ravenscraft and Scherer (1987) reported that the merger wave of U.S. firms peaked in 1968 as anti-trust constraints on horizontal mergers had become much more stringent in the 1960s. Additionally, both shareholder taxation and corporate taxation can exert an effect on a firm's diversification strategy. Auerbach and Reishus (1988) argue that in 1980s, dividends were taxed more heavily than ordinary personal income. As a result, shareholders may prefer that companies retain these funds for use in buying and building companies in high performance industries.

Williamson (1975) suggested that when the transaction cost is high, firms may have the incentive to create an efficient internal capital markets to avoid the external transactions. Firms tend to internalize the assets rather than to use contract for services when uncertainty exists and markets fail due to high transaction costs. Diversification may be a good approach to solve the problem of too-high transaction cost (Hoskisson & Hitt, 1990).

2.3.2 Internal Incentives

Firms may acquire diversification strategy to avoid the uncertain future cash flow as suggested by Rumelt (1974) and Leontiades (1986). For example, firms in the so called 'sunset industry' such as textile and mechanical products must diversify to survive over the long run. Beatty and Zajac (1994) suggested that in 1990s the 'No-Smoking' movement urged several tobacco and cigarette companies to diversify in order to avoid the possible uncertainty in the future.

Managerial motives are always cited as a critical motivation of firm's diversification strategy. Scholars contend that diversification may reduce the employment risks of top executives (Amihud & Lev, 1981). These theoretical arguments are largely based on agency theory (Jensen & Meckling, 1976). Thus, scholars contend that corporate managers may diversify a firm to diversify their employment risk, as long as profitability does not suffer too much (Hoskisson & Turk, 1990). Managers' concern about employment risk can motivate unrelated diversifications, which provides a

benefit to managers that shareholders do not enjoy (Tosi & Gomez-Mejia. 1989). Diversification and firm size are highly correlated, as are firm size and executive compensation (Dyl, 1988). Thus, diversification provides an avenue for increased compensation.

Scholars argue that ownership structure can also be one of the important factors to urge a firm to diversify (Hoskisson & Turk, 1990). Hoskisson and Turk (1990) contend that firms with low concentration of ownership are susceptible to excessive diversification because diffuse owners may not monitor the management effectively. They argue that highly diffuse ownership encourages free riding on the monitoring efforts of larger shareholders because small shareholders' potential losses may be small due to poor management so that rationally they would choose not to contribute any effort to supervising the management of the firm. Hill and Snell (1988) found that managerial ownership concentration is negatively related to the level of diversification. Denis, Denis and Sarin (1997) find that the level of diversification is negatively related to managerial equity ownership and to the equity ownership of outside block-holders.

2.4 Outcomes of Diversification: Performance

There is a substantial body of literature that investigates the impact of diversification on the market valuation of firms. Lang and Stulz (1994), and Servaes (1996) find that

diversified US firms trade at discounts relative to single-product firms. Similar studies have been conducted by Berger and Ofek (1995), Khanna and Palepu (1996), Lins and Servaes (1998) for diversified firms in both developed and developing countries.

As to the efficiency of diversified firms' investment, several authors argue that diversified firms allocate their funds to less profitable segments. Shin and Stulz (1998) found that the investment by a business sector of a diversified firm depends on the cash flows of a firm's other business sectors, but significantly less than on its own cash flow. They argue that the investment by business sectors of highly diversified firms is larger and less sensitive to their cash flow than the investment of comparable single-product firms. Scharfstein and Jeremy (1997) examines investment patterns across product areas in diversified firms and find that diversified firms seem to reallocate the resources inefficiently across business divisions and move funds from profitable firms in industries with high Q to sectors with low Q. Rajan, Servaes, and Zingales (1997) find that firms suffer from the discount in profitability caused by misallocation of funds through diversification. The extent of investment funds misallocation is positively related to the diversification level and the discount is positively related to the extent of misallocation.

Empirical studies are abundant in this field. Lang and Stulz (1994) show that firm diversification and firm performance (measured by Tobin's Q) are negatively related throughout the 1980s in U.S. Further, they find that diversified firms have lower

Tobin's Q than comparable portfolios of single business firms and firms that choose to diversify show worse performance relative to firms that do not. Berger and Ofek (1995) conclude that on average, when diversified firms are compared against matching portfolios of specialized firms they were valued less by 13 to 15 percent during the 1986 to 1991 period. Further, Morck, Shleifer and Vishny (1990) show that during the 1980s, managerial objectives may drive acquisitions that reduce bidding firms' values.

Stockey (1991) and Young (1993) argue that when firms diversify into new businesses, the diversification is related to a temporarily lower level of firm profitability as the firm is learning to use its new technology. Young (1995) studied the firm's diversification strategy in the context of East Asia and found that as firms diversify into more unrelated businesses, they may need more time to adapt to the new technology. Empirically he found few firms could reach the profitable stage of learning due to several reasons such as the too eagerness of the local government to encourage the technology innovation.

Scholars have also examined the internal capital market of diversified firms to explore the implication on performance. When external capital markets are more costly to use, firms allocate their capital internally through diversification (Williamson, 1971; Lamont, 1997; Stein, 1997). Fauver, Houston and Naranjo (1998) find that diversified firms perform better in most developing countries where the capital markets and the legal systems are less advanced. When the external financial

markets are weak or there exists market failure, diversification may be an effective strategy for firms to lower the transaction cost.

2.5 Ownership Structure and Firm Performance in Asia

Even with the extensive research on ownership structure and firm performance conducted in U.S., Japan, and West Europe (Gedajlovic & Shapiro, 1998; Walsh & Seward, 1990), scholars have turned their eyes to this issue in the Asian context (Singh et al., 2002). Compared to the U.S. and other developed countries that have mature and strong financial institutional environments, the environments of developing countries in Asia such as China, Malaysia and Thailand are characterized by a lack of financial infrastructure, underdeveloped banks and weak legal enforcement (Khanna & Palepu, 1997). This point is important as institutional environments will exert an influence on the relationship between ownership concentration and firm performance. For example, requirements for information disclosure and the protection of minority shareholders may influence manager's and shareholder's decisions on ownership structure and the monitoring relationship (Gedajlovic & Shapiro, 1998). Thus, scholars working on ownership and performance issues in the Asian context expect to find new implications of ownership structure on firm performance, which is different from that in the developed countries.

The existing literature documents that ownership concentration exerts an inverted U-shaped impact on a firm's performance in the context of developed countries

(Johnson et al., 2000; Thomsen & Pedersen, 2000). Not surprisingly, scholars have also found this inverted U-shape effect to stand in emerging economies in East Asia countries such as Malaysia, Thailand and South Korea (Singh et al., 2002). However, they find that the inverted U-shape in East Asia is very different from the inverted U-shape in developed countries in that the climbing and declining parts of the inverted U-shape curve in developing countries will be steeper (Singh et al., 2002). Singh et al (2002) explain these greater slopes by suggesting that the benefits of ownership concentration in developing countries will be greater because large shareholders are less constrained by internal and external control mechanisms so that they can more effectively monitor management to reduce agency problems. Yet the lack of control on block shareholders may also result in a greater cost of high ownership concentration because it is easier for them to appropriate the minority owners. Empirically scholars find that the steeper inverted U shape holds in Malaysia, Singapore, Hong Kong and South Korea (Singh et al., 2002).

As to the other aspect of ownership structure, the literature suggests that the role of different ownership identity on firm performance is various. For example, institutional ownership outperforms family, corporate and government ownership (Thomsen & Pedersen, 2000) for firms in Europe. The ownership identities in Asia may be a little bit more unique and complicated. There is state ownership, institutional ownership, bank ownership, corporate ownership and family ownership (Singh et al., 2002). In China, there are even more unique ownership identities such as legal person shareholding and employee shareholding (Xu & Wang, 1997). Similar

to that in developed countries, scholars have also found that ownership identity does matter in its different implications on firm performance. For example, Singh et al (2002) found that bank ownership and state ownership is negatively associated with firm performance. In addition, the negative effect is enlarged in the developing economy environment as compared to developed countries. However, they also find that bank and state ownership exert a positive impact on firm's performance when an economic shock occurs, which may be explained by the state's and bank's capability to provide more resource support during an economic shock.

2.6 Summary

Agency theory is a basic theoretical frame of reference in the study of corporate governance. I began the survey by showing that financers need managers to better the operation of the firm. In the meanwhile, an agency problem may occur if managers expropriate funds (Jensen & Meckling, 1976). The agency problem can be addressed by granting the manager a long term incentive contract, effective principal monitoring and a good design of ownership structure (Fama, 1980; Beatty & Zajac, 1994).

As the privatization process goes on around the world, agency problems are not only confined to developed countries, they can extend to the transition economies in which firms that have a separation of ownership and control are beginning to emerge (Eisenhardt, 1989;Gedajlovic & Shapiro, 1998). Considering the unique economic environment and institutional surrounding in emerging and transition countries, the

agency problem might show a different face and thus can not be effectively addressed given our current understanding of it (Walsh & Seward, 1990).

As to the relationship between ownership concentration and firm performance, the literature shows that high levels of ownership concentration is linked with better performance because it leads to effective monitoring and is associated with lower coordination costs (Hill & Snell, 1989; Tosi & Gomez-Mejia, 1994). As to the identity of different shareholdings, empirical tests have shown conflicting results. Some scholars have found government ownership inferior to private ownership while others suggest that government ownership is not necessarily less efficient than private ownership (Martin & Parker, 1995; Kole & Mulherin, 1997; Xu & Wang, 1997).

Diversification is considered as one of a firm's most important strategies, which has critical implications on firm's performance (Lang & Stulz, 1994). The existing literature indicates that a variety of factors may trigger a firm to diversify, such as government policy, high transaction costs and ownership structure (Ravenscraft & Scherer, 1987; Hoskisson & Turk, 1990; Morck et al., 1988). A firm's diversification strategy also has a weighted impact on its performance. Most of the existing studies have been done in the context of developed countries and most scholars have found a negative relationship between the extent of diversification and a firm's performance (Khanna & Palepu, 1996; Lins & Servaes, 1998).

All the literatures I review in this chapter are done in the context of developed countries. As the topic of my thesis is for China's listed companies, I expect different situation and environment in such a large emerging economy. I will discuss the economic environment and previous research about agency problems in China, Chinese firm's ownership structure and diversification strategy in the following chapter.

CHAPTER 3

OWNERSHIP, DIVERSIFICATION AND FIRM PERFORMANCE IN EMERGING ECONOMIES AND CHINA

In this chapter I discuss the relationship between ownership structure, diversification strategy and firm performance in the emerging economies and China. I first discuss the economic reforms that happened during the 1979-2002 period in China, especially the inception and development of China's stock markets. Then I review studies on different types of Chinese firms' strategies, which have important implications for firm performance. Next, I combine the literature on ownership structure, diversification strategy and firm performance in both emerging economies and China, with the goal of identifying limitations in the previous research. In the final section, I summarize the materials I revised and develop the propositions for my research.

3.1 Economic Reforms in China

3.1.1 The Transition of China's Institutional Environment

Institutions are 'the rules of the game in a society or the humanly devised constraints that shape human interaction' (North, 1990: 3). An institutional environment means the legitimate social behavior accepted by the individual and organized 'players'

through the establishment of political, social and legal rules. According to North (1990), there are two general categories of constraints that make up the institutional framework: formal and informal constraints. Formal constraints include political rules, judicial decisions and economic contracts while informal constraints include 'socially sanctioned norms of behavior' (Scott, 1995), which relates more to the culture of a country and her people.

Institutions have a critical impact on human behavior, and thus have an indispensable effect on a firm's strategies, which are made by decision makers. By regarding a firm's strategy as one choice out of numerous alternatives, scholars argue that institutions prompt a firm to make choices and constrain it from choosing others (Peng & Heath, 1996). However, scholars have not studied much about the relationship between firm strategy and institutional constraints in the previous decades as most of their studies are concentrated on Western enterprises and they take the market based institutional framework as granted (Peng, 2000). This situation is not changed until scholars have started the large amount of research in the context of emerging countries and transition economies.

Recently more and more scholars have paid attention to firm's strategy in Asia, especially the emerging economies in South and East Asia (Khanna & Palepu, 1997; Peng, 2000; Singh et al., 2003). Based on the previous study, scholars accept the conventional wisdom that firm's strategy is mainly influenced by two factors: industrial effects (Porter, 1980) and firm-specific resource (Barney, 1991). By

stepping into the research toward a more advanced stage, scholars have found that institutional effect serves as another most important factor to influence a firm's strategy making process, besides the commonly recognized factors mentioned above (Powell & DiMaggio, 1991; Scott, 1995). Scholars argue that there are significant institutional differences between emerging economies in Asia and the developed countries, which have already received extensive research emphasis. For example, scholars have reached a general consensus that the institutions of developed countries such as the United States, Japan and West Europe are characterized by a mature and strong financial infrastructure and severe internal/external monitoring mechanisms. Meanwhile, developing countries bear an under-developed financial market, low financial reporting requirements for listed firms and weak legal enforcement (Gedajlovic & Shapiro, 1998; La Porta et al., 1999). Empirically, scholars have found that institutions do matter in influencing a firm's strategy and thus have implications for a firm's performance (Scott, 1995; Singh et al., 2002).

One of the largest emerging economies in the world, China, is generally regarded as sharing common characteristics to other developing countries, such as economies in South East Asia: Malaysia, South Korea and Thailand; economies in Eastern Europe: Poland and Hungary; and economies in South America: Chile. These characteristics include under-developed strategic factor markets, poor communication and infrastructure development and a lack of property right-based legal system (Johnson et al., 2000; La Porta et al., 1999). However, China also has its unique characteristics compared to other emerging economies. Following North's theory, I will explore the

uniqueness of China's institution from two perspectives: formal and informal constraints.

As with the political and judicial system, the legal environment is generally regarded as the formal constraints of an institution, China should be classified into the group of 'Soviet-type central planning regime and communist ideology' (Kornai, 1992). Similar to the former Soviet Union and other members of the Warsaw Treaty Organization, China has built a huge highly centralized hierarchical system throughout the country and limits the private ownership to low levels. Probably because of this central planning history, in China scholars did not find many family business groups which have been found to play an important role in the economic development, as with the South East Asian economies such as Thailand, South Korea and Taiwan.

Interestingly, all of these countries began an economic transition toward market economy in the 1980s and 1990s, but at different paces. The enterprises in these countries all face a changing environment as central planned enterprises are gradually substituted by a market-based orientation. These firms also are themselves under a change of ownership and management such as the transfer of ownership from the state to private sectors (Brus & Laski, 1989; Fischer & Gelb, 1991).

Besides the similarities I described above, China has more disparities compared to the formerly centralized countries. China is pursuing a progressive transition strategy as

to its economic reform compared to the sudden change of East Europe countries (Butawoy & Krotov, 1992). China shows its uniqueness more in the informal constraints such as traditional culture. Personal relationship plays a vital role in the economic activities and human life in China (Peng, 1994). According to Peng (2002), China's firms' managers regard the connections with government officials and business partners (suppliers and customers) as the most important resource for the survival of a firm. This is a very common situation in economies in South East Asia such as Malaysia, Thailand, South Korea and Taiwan, which are characterized by a close connection between business and politics and certain levels of corruption and cronyism. This kind of relationship shows its more important effect as the substitute to the lack of legal system and acts as a hindrance to the construction of a strong legal enforcement and system (Child, 1994).

Given this environment, scholars have found different strategies for firms to diversify or grow in such a unique context. Peng and Heath (1996) find that firms in China tend to achieve growth through a network-based strategy, which is based on personal trust between firm managers. They argue that generally, firms grow through one of the three possible approaches: generic expansion, merger and acquisition and network-based relationships such as strategic alliances, joint ventures and business groups. Considering the unique institutional environment of China, they argue that China lacks qualified managers to lead a firm towards generic expansion and China also lacks the mature financial and strategic factor markets to support mergers and acquisitions. As a result, firms may choose a network-based approach to grow by

forming alliances or groups, firms can avoid the difficult problem of ownership transfer in the under-development of financial institutions and reduce risks in a high transaction cost environment.

Scholars have also considered the institutional effect in studying the diversification strategy of firms in China. Research on U.S. and U.K firms generally suggests a negative relationship between firm diversification and performance since 1970s (Hoskisson & Hitt, 1994). However, such a negative correlation is not found in China and scholars have even found large unrelated business groups to exist in China (Keister, 1998). This puzzle may be partly explained by the institutional effect. Following the framework I have described above, I will explore the institutional effect of China on firm's diversification strategy from two perspectives: formal and informal constraints.

Three formal constraints are prerequisite to support low transaction-cost business operations to a firm in a transition economy: a credible legal framework, a stable political structure and a well-developed and functioning market (Khanna & Palepu, 1997). Scholars argue that China, as an emerging institution, is weak in all of the above three areas. Researchers have reached a consensus that China markets have developed faster than laws during the transition period (McMillan, 1996). Peng (2000) pointed out that during the transition of China; the government has gradually dismantled the central planning regime. However, the necessary formal constraints of a well-defined property rights based legal framework have been absent. The lack of

such a legal system might result in opportunistic behavior and high transaction cost. According to McMillan (1996), 'In the early 1990s, China's legal institutions remain essentially unreformed and ill-suited to the institutions of a market economy' and thus 'property rights and contract rights are not well defined and reliably enforced. McMillan (1996) contended that 'contracts in China have more of a sense of moral obligation than absolute rights'.

China's lack of legal framework is accompanied by a lack of stable political system (Peng, 2000). The political reform process of China lags far behind the pace of economic reform and met with a large setback in the incident of 1989. Such an uncertainty makes the economic participants more concerned about the connection to the government. For example, Chinese managers regard the state regulatory regime to be most influential and least predictable factor on firm performance from eight environmental effects (Tan & Litschert, 1994). As a result, managers will have to devote a great part of time and energy into the relationship with government officials.

A market is 'an institution which needs rules and customs in order to operate' (McMillan, 1996). China is under-developed in its product market, capital market and labor market compared to the developed countries (Khanna & Palepu, 1997). Scholars argue that some parts of China lack communication and transportation infrastructure to support the economic development. Independent consumer organizations are scarce and government watchdogs are inefficient so that the inadequacy of information increases the transaction cost (Peng, 2000). Capital market

discipline is weak in China and capital allocation was seriously distorted (McMillan, 1996). Compared to the mature market in U.S., China's capital market is weak in that the financial report is not so reliable, the financial analysts community is non-existent and the independent financial press is rare (Peng, 2000). China also suffers from the lack of a mature labor market such as professional managers market. Johnson et al (2000) contended that China is facing a situation of inadequate trained and productive labor force and rare management talents.

In sum, while China' government has dismantled the central planning scheme gradually during the transition, it has not established the formal constraints which are necessary for low cost business activities. This situation will have great impact on Chinese firms' strategies as a reaction to the institutional effect. According to North (1990), when the formal constraints of an institution are weak and fail to provide certainty, informal constraints will come into play to reduce the uncertainty and provide constancy to the organizations. In China, informal constraints rise to play the role in the following two aspects.

First, the interpersonal connections among executives are the most important informal constraints (Peng, 2000). Child (1994) argues that managers in China 'rely more heavily on the cultivation of personal relationships to cope with the exigencies of their situation'. Managers give presents and gifts to government officials or other superiors in order to maintain the long-term personal relationship and thus reduce the uncertainty and gain the information advantage (Xin & Pearce, 1996). China's

managers report in a survey that the connections with officials are more important than ties with other managers in terms of the impact on firm performance (Peng & Luo, 1999).

Another important informal constraints in China is the reputation of conglomerates which serves as a signaling device to reduce the uncertainty of consumers and investors (Peng, 2000). Under a market with high uncertainty and lack of law enforcement, the reputation of a conglomerate will help enhance the recognition from consumers and trust from business partners. Thus the member of a business group may have the advantage of getting familiarized by customers and gaining easier access to capital or foreign investment (Khanna & Palepu, 1997). Specifically, conglomerates are able to perform some functions by themselves to compensate for the lack of formal institutions, such as capital allocation, information seeking and labor allocation (Peng, 2000). This advantage is more obvious when compared to the institution of developed countries characterized by strong legal enforcement and strategic functioning agents such as market research company, financial press and law firms.

Overall, China is a market with high transaction costs and lack of formal constraints (Peng & Heath, 1996). Therefore, firms may rely more on the informal constraints I discussed above to avoid uncertainty and acquire constancy. The institutional aspect provides a rationale for firms in China to diversify and achieve good performance through diversification. Actually it is worth noting that scholars did not find a

negative relationship between diversification and firm performance in developed economies in the early era (Matsusaka, 1993). This strengthens my belief that institutional effect plays an indispensable role in China's firm's diversification strategy and thus the implication on firm performance.

3.1.2 The Emergence of Stock Markets in China

The economic system in China was highly centralized before 1978 when the central government launched its Open Policy. Under the leadership of Deng Xiaoping, the central government initiated large-scale economic reforms in 1978 (Qian, 1999). The reforms were aimed at moving the economy toward a greater decentralization of decision-making and an increased reliance on market forces.

The development of China's stock market is one of the most important elements of China's reform of its financial system. In 1981, the central government began to issue treasury bonds to finance deficits. In 1986, the Shanghai branch of the People's Bank of China set up the first over-the-counter (OTC) market in Shanghai. In 1987, Shenzhen Development Bank sold the first stock in Shenzhen market.

In December 1990 and July 1991, the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) were established in China. By the end of 1991, 14 companies were listed in the two stock exchanges. Since the stock exchanges were established, China's stock markets have developed quite rapidly. Compared to the 14 listed companies (8 on Shanghai Stock Exchange and 6 on Shenzhen Stock Exchange)

in 1991, 1287 companies (508 on SZSE and 779 on SHSE) had been listed on the two Stock Exchanges by the end of 2002.

The fast development of China's stock market serves as a window through which one can view the outcomes of economic reforms in the country and it provides scholars with a view on how to study China's emerging economy. On the one hand, the number of listed companies and raised capital has increased rapidly since the establishment of the two stock markets in 1990, which is a sign to show that China's economy is under fast development and increasing numbers of corporations are transiting into an advanced and modern form of firms. On the other hand, together with this transition, the potential problems that have been found in the West such as agency problems characterized by the separation of ownership and control have the potential to show more of its face in the economic activities in China. To study this dynamic phenomenon, scholars have been working on understanding China's economy and its companies, which has also helped to enrich the classical theories about firms such as agency theory and transaction cost theory. Finally, it has enhanced people's understanding on economic transition in emerging economies and China (Tan, 1996; Xu & Wang, 1997; Tian, 2002; Sun et al., 2002).

3.1.3 The Ownership Structure of China's Listed Companies

A company in China may issue five different types of shares on either the Shanghai or Shenzhen Stock Exchanges: state shares, legal person shares, employee shares, A-shares and B-shares. In addition, they may issue shares in Hong Kong and on

overseas exchanges. All shares of a listed company have the same voting rights and cash-flow rights, which means that one share is entitled to one vote. There is no cross-listing between the two exchanges (Xu & Wang, 1997).

State shares are those held by the central government, local governments, or solely government-owned enterprises. The central and local government has the right to appoint the government officials as agency to exercise ownership rights on the state-controlled firms. For most listed companies, the State is the largest shareholder.

The legal person shares are shares owned by domestic institutions. There are various forms of legal person shareholders such as stock companies, non-bank financial institutions, and SOEs that have at least one non-state owner. Like State shares, legal person shares are not allowed to be circulated publicly or traded to either domestic or foreign individual investors. However, under the approval of the China Securities Regulatory Commission (CSRC), legal person shares can be transferred to domestic corporations.

Tradable A shares are owned by Chinese domestic individual residents or legal persons, but are not allowed to be owned by foreign investors. A-shares are the only type of tradable shares that can be publicly traded among domestic investors on SHSE and SZSE. Individuals are only allowed to hold no more than 0.5% of the total shares of any listed company. The CSRC requires that A-shares account for more

than 25% of total outstanding shares for a company when listed. The market price of a listed company refers to the price of A-shares (Xu & Wang, 1999).

The employee shares and management shares are offered to workers and managers of a listed company, usually at a substantial discount. The employee shares only account for limited part of the total shareholdings of listed companies. Managers are not allowed to trade their shares on stock markets during their tenure.

Initially B-shares are available exclusively to foreign investors and some authorized domestic securities firms. In 2001 the CSRS began to allow the domestic individuals to invest in B-Share. The B-share market is separated from the A-share market, with SHSE B-shares denominated in US dollar and SZSE B-shares in Hong Kong dollar. H-shares are issued and traded at the Hong Kong Stock Exchange. At the SHSE, 56 companies have offered B-share or a combination of the three foreign shares, and 34 at the SZSE in 2002.

A typically listed company in China stock markets (SHSE or SZSE) has a mixed ownership. Table 3-1 presents an overview of the percentages of the total shares in each of the different share classes across Chinese firms across 1993 to 2002. The table shows that the state, legal persons and domestic individual shares are the three predominant groups of shareholders. Each of the three holds about 30% of the total outstanding shares (Shanghai Securities Yearbook, 1993-2002).

The ownership structure of Chinese listed companies discussed above has led scholars to put an intense research focus on the three major types of shareholdings: State shareholding, Legal Person shareholding and Private shareholding (Tan, 1996; Xu & Wang, 1997; Tian, 2002; Sun et al., 2002). In addition, there are also some literatures that study other types of ownership such as town and village ownership (Jefferson et al, 1992). In this work about shareholdings in China, there are two basic streams: one stream to study the effect of ownership concentration, and the other stream to study the effect of divergent ownership identities. I will discuss the details of these two streams, below.

3.2 Ownership Structure

3.2.1 Ownership Concentration

Prior research in China indicates that corporate governance has a significant impact on firm performance. The evidence compiled from research in China is in line with the suggestion that improving performance and creating value can be achieved by paying greater attention to ownership structure and concentration (Jensen & Meckling, 1976).

In this context, the effect of ownership distribution on firm performance and valuation has been the focus of extensive analysis in market economies. The existing literature documents a mixed effect between ownership concentration and ex-post

firm performance measures in developed economies (Demsetz & Lehn, 1985; Morck et al., 1988; Shliefer & Vishny, 1988).

Empirically, many studies conducted in China also document conflicting results related to the relationship between ownership concentration and firm performance. Xu and Wang (1999) tested a pooled sample of all the China's listed companies in 1993, 1994 and 1995 and find a positive relationship between ownership concentration and firm profitability. Lins (2002) tested across a sample of 1433 firms in 19 emerging economies including China and found that non-management control rights block-holdings are positively related to firm value. On the contrary, Chen and Gong (2000) studied the relationship between ownership structure and corporate performance for up to 128 listed firms on the Shenzhen Securities Exchange in China from 1992 to 1995 and did not find any correlation between the two.

3.2.2 Ownership Identity

Different ownership identities will exert various impacts on a firm's performance (Tan, 2002). Scholars have done extensive work in examining the relationship between ownership identities and firm performance in the context of China (Wolfram, 1998; Denis & Denis, 1995).

There are primarily three groups of shareholders that can exert an influence on a firm's performance—the state, legal persons and domestic individual investors. State shares are owned by the central or local government. A-shares are traded by domestic

individual investors. Legal person shares refer to domestic institutions and denote legally constituted autonomous organizations including stock companies, non-bank financial institutions and SOEs, all of which have some non-state ownership structure.

State shareholding is the most important ownership in Chinese large firms as a considerable proportion of firms have state ownership as their largest shareholdings (Berkman et al., 2002). Among the studies conducted on state shareholding, most scholars have reached a general consensus on its negative effect on a firm's performance (Hussain & Jian, 1999; Morris et al., 2002).

Scholars have provided a comprehensive set of explanations on state ownership's negative impact, from theoretical to empirical, from static to dynamic. Theoretically, most scholars contend that government officials, who are the representatives of state, may not pay adequate attention to firm performance because they may be more occupied with political considerations (Shapiro & Willing, 1990; Shleifer & Vishny, 1994); they may lack the essential expertise to effectively monitor and run a firm (Majumdar, 1998); they will have the political motivation to carry a heavy burden of excessive employees (Shleifer & Vishny, 1994); or the government agencies will remain less innovative and less risk taking for the consideration of their job security (Perkins, 1994).

Empirically, scholars have conducted research using both static and dynamic perspectives. Using a static approach, scholars compare firms with different

ownerships (state-owned, collectively-owned and privately-owned) over the same period. Based on an analysis of a survey of 201 managers from four types of companies in China (state-owned, collectively-owned, privately-owned and foreign ventures), Tan (2002) contended that each ownership type exhibited a distinct environment-strategy configuration, which in turn had important performance implications for the firms. Other scholars used a dynamic approach to compare corporate performance before and after a firm was privatized, in which they found a firms' performance to improve after privatization which supports the notion of a state shareholding's detrimental effect (Megginson et al., 1994). Additionally, scholars have also found non-monotonic relationship between government shareholding and firm performance for China's listed companies (Tian, 2001). It means that scholars can not simply regard state ownership as having a purely unidirectional impact on firm's performance. Rather, the institutional effects and contingency may play a large role in the relationship between state ownership and firm performance.

Legal person shareholdings are controlled by local institutions other than the state. Compared to the state shareholder, legal person shareholders do not have to consider political objectives and thus can influence the firm in direction of profit maximization (Claessens, Djankov, & Lang, 1999). Thus scholars expect that the legal person shareholder should play a positive role in monitoring a firm's management (Wolfensohn, 1998). In a study of more than one hundred of China's listed companies, Xu and Wang (1999) contend that a firm's profitability is positively correlated with the proportion of legal person shares, but it is either negatively

correlated or uncorrelated with the fraction of state shares and A-shares. They also suggest that labor productivity tends to decline as the proportion of state shares increases.

Private ownership is one of the three dominant shareholdings for China's listed companies (Table 3-1). Scholars have analyzed and explained the performance of privately-owned enterprises from theoretical and empirical perspectives. The literature suggests that there exists a two-faced performance implication for privately-owned enterprises. On the one hand, entrepreneurs of privately-owned enterprises do not have to be concerned about the principal-agent problem and thus are more self-motivated to take a flexible strategy to maximize a firm's profitability (Tan, 2001a). Nee (1992) contends that the chance of a private business to survive increases in such an emerging economy as China because there exists a great supply shortage of unfulfilled products. Additionally, privately-owned enterprises are constrained by a hard tight budget, which urges them to remain alert and proactive for the purpose of profit maximization (Boisot & Child, 1988, Perkins, 1994). On the other hand, privately-owned enterprises have many disadvantages in market competition compared to state-owned or collectively-owned enterprises: they are not favored by the banks or supported by the local government (Tan, 2001b), they have rather weak market power, poor distribution and supply networks and they face a heavy tax burden (Byrd & Lin, 1989), and they have relatively small market share and thus weak market power (Tan, 1996). In response to these competitive disadvantages, China's private firms' owners actively develop personal connections. Through a

survey on Chinese privately-owned enterprises' executives, Xin and Pearce (1996) find that the executives of Chinese privately-owned enterprises regard business connections as essential for securing business opportunities and protection, Hence, executives in these companies rely on and trust business relationships to a much higher extent than their counterparts in developed countries.

3.2.3 The difference between State Shareholding, Legal Person Shareholding and Individual Shareholding

It is worth noting here that legal person ownership is an important and even necessary type of shareholding in China's economic development. Like many transition economies such as Vietnam and Poland, in the late 1970s, China launched its economic reforms towards building a market-oriented economy. Rather than utilizing a big-bang or shock therapy to restructure the country's economy, China's government leaders have taken a progressive and step-by-step approach.

Basically, the process of China's economic reform can be divided into two periods. In the first period (1978-1993), the major task of the reform was to reduce government intervention and the bail-out of SOEs, to encourage profit-seeking incentives and competition, and to give enterprises relatively more discretionary decision-making power. In the second period (1994-present), the major task of the economic reform was to enhance the efficiency and profitability of SOEs through various ways such as privatization, restructuring and selling, and to build a market-based environment

through the development and improvement in areas such as legal enforcement and financial institutions (Qian, 1999).

Legal person shareholding emerged towards the end of the first period, but its major importance resides mostly in the second period as it served as a bridge to transfer and re-structure state shareholdings. Even though the government wanted to reduce intervention and withdraw from corporate management to encourage the pursuit of efficiency objectives, state shareholdings could not be transferred directly to private shareholdings as the private sector did not have the capital to acquire large state shareholdings, and it was difficult to ensure the transparency and fairness of the transitions and avoid corruption. Further, the government could still retain control and residual claim rights on profitable state assets.

In this sense, legal person shareholding offered a possible solution for the above dilemma so that the government could re-structure corporate ownership towards the form of private shareholdings yet retain government control in state assets. Further it could transfer government shareholdings into legal person shareholdings in situations where it is either impossible or inappropriate to transfer the government shareholdings to private shareholding. Legal person shareholdings thus act as a temporary type of shareholding but a necessary one under the current stage of China's economic reform.

Legal person shareholders are different from either holders of state shares or A-shares. The most basic distinction between legal person and state shareholders is that a legal person shareholder tends to be an economic entity with economic-related goals, while a state shareholder can be motivated by both political and economic goals. Legal person entities have hard budget requirements and have the relative freedom to decide the quantity of inputs and outputs in a firm's production. Companies such as these do not obtain full financial support from the government, nor are they required to yield profits to the government.

In contrast, state shareholders operate on a soft budget basis, and do not have sufficient freedom to manage a firm's operation. In most situations, the production and strategic decisions of a company controlled by state shareholders are largely dependent on the government's instructions. The government (whether local or central) is also responsible to subsidize losses, and the firm yields its profits to the government (Xu and Wang, 1999).

Meanwhile, a legal person shareholder is somewhat different from an individual shareholder in that a legal person shareholding is not privately owned. Only a domestic Chinese institution is qualified to be a legal person, which excludes the possibility of an individual to be a legal person. In this respect, legal person is more like an institutional shareholder.

3.3 Motives of Diversification

3.3.1 Diversification in Emerging Economies

There has been extensive amount of research on diversification strategy in emerging economies. As Ghemawat and Khanna (1998: 35) note, 'diversified business groups dominate the private sectors of most of the worlds' economies'. Business groups are common in developing countries (Leff, 1976) and scholars have explained the emergence of business group in developing economies from the following perspectives.

First, scholars interpret the phenomenon of diversification in developing countries as being based on innovations in intra-firm organization in response to market imperfections (Leff, 1978). In an institutional environment that has high risks and uncertainties, an organization chose to diversify as an alternative to substitute the absence of markets. Many emerging markets bear the character of under developed markets with high transaction costs. 'Under developed' here refers to the weak enforcement of laws, the lack of well functioning financial institutions, and the absence of an efficient external capital market. Therefore, firms have the incentive to diversify so that they can internalize the transactions to avoid the high transaction cost from the external market. Secondly, the government plays a critical role in encouraging and supporting firms to diversify (Chang & Choi, 1988). For example, the South Korean government launched an export oriented development policy and encouraged the firms to diversify geographically and productively. Thirdly, a

diversified business group could have an advantage to share non-tradable assets and access to the bureaucracy (Ghemawat & Khanna, 1998).

Based on the above explanations, scholars have found a generally positive relationship between firm diversification and firm performance, which is contrasting to what they have found in developed countries. Palepu and Khanna (1996) compared the diversified business groups and non-business group affiliated companies in India and found that business group members out-performed non-members if the groups exceed a critical threshold. Chang and Choi (1988) analyzed the diversification strategy of Chaebol in Korea and found that business groups with a multi-divisional structure showed better performance than non-group members. China represents yet another case of diversification among its large firms, as resident in a transitional economy. I will discuss the literature on diversification in China in the following section.

3.3.2 Diversification in China

With the transition from a planned economy to a market economy, drastic changes have been occurring in institutional contexts of China, and all types of firms find it necessary to make strategic choices in order to survive or defend their market position. It is a critical decision for a firm to choose among a wide array of strategic choices such as whether to diversify the firm's production or not. For example, without the constraints of central planning, the Hong Kong branch of the Bank of China pursued a diversification strategy in the 1980s in order to increase its earnings

(Kraar, 1979). In recent years, various firms in China have conducted diversification experiments that have yielded mixed results. While focusing has become a fashionable strategy in market economies (Hoskisson & Hitt, 1994; Khanna & Palepu, 1997), diversification is gaining momentum in transition economies such as China.

Several scholars have conducted studies on Chinese firms' diversification strategy. Tan and Li (1996) argue that ownership structure has an impact on the environment-strategy configuration of China's firms, which have important implications on a firm's diversification strategy. Li and Tse (1997) propose that both market forces and the legacy of government planning and intervention are simultaneously influencing firms' strategic decision of diversification. In addition, Li et al. (1998) suggest that two key factors—effective management of external relations and resource and skill building and utilization--may take effect in motivating firms to pursue a diversification strategy in a transition economy.

3.4 Product Diversification, Ownership Structure and Firm Performance

Scholars have attempted to explore empirically the appropriate relationship between a firm's characteristic (such as ownership structure) and a firm's strategy (such as diversification), and the impact of this relationship on firm performance. The literature suggests that the relationship and impact are context-specific, such as in China (Tan & Li, 1996; Tan & Litschert, 1994). Furthermore, studies set in the

United Sates have also found that ownership is significantly related to various strategies, including diversification (Baysinger & Hoskisson, 1990; Hoskisson & Turk, 1990).

In research set in China, with the exception of a few studies, the impact of the relationship between ownership structure and diversification strategy on a firm's performance has only received limited attention. Zhao and Luo (2002) used a sample of 319 foreign subsidiaries in China, which was drawn from a national survey of 1000 subsidiaries conducted and administrated by the State Statistical Bureau of China in 1995, to find that subsidiaries pursuing a related diversification strategy with parents and perform better when firm performance is measured by sales growth and profitability than those with an unrelated diversification strategy. In addition, they find that majority ownership further facilitates the positive effect of related diversification on subsidiary performance.

Luo (2002) analyzed data containing 134 international joint ventures (IJV) in China to explore how the product relatedness with either foreign or local parents affects performance of joint ventures. Based on an interview with the managers of those international joint ventures, he contends that the relatedness of an IJV's products with that of its foreign and local parents is positively associated with its performance and that an IJV maintaining bilateral related diversification with both parents performs better than a venture maintaining a unilateral related linkage with one parent. The

relationship between product relatedness and IJV performance is contingent on resource complementarity or goal congruity.

3.5 Summary

In this chapter I review the development of China's economy and stock market in the most recent two decades. The China government initiated the economic reform in 1978. As a critical part of economic reform, the stock market was established in 1991. Since then, more and more Chinese firms have successfully been listed, amounting to a total of 1287 firms by 2002. A company in China may issue different types of shares on the stock market: state shares, legal person shares, employee shares, A-shares, B-shares and H-shares (Xu & Wang, 1997). State share, legal person share and A-share compose the majority of most listed firms' shareholding. Hence, there are a number of possible identities for shareholders in China's listed companies.

Prior research shows that both ownership concentration and ownership identity have a significant impact on a firm's performance in the China context. Studies conducted in China document conflicting results as to the relationship between ownership concentration and firm performance. Some researchers find a positive and significant correlation while others did not find any correlation between ownership concentration and firm performance (Xu & Wang, 1999; Lins, 2002; Chen & Gong, 2000). As to the identity of ownership, legal person share is found to be positively related to a firm's profitability while state shares are negatively correlated with firm performance

(Xu & Wang, 1999). In addition, town and village enterprises that are dominantly controlled by private ownership are found to demonstrate higher efficiency than SOEs who are mostly owned by the government (Jefferson et al, 1992).

To better understand and analyze the China market, I reviewed the strategies commonly used by different types of Chinese firms in the recent years. Scholars have argued that Chinese state firms' managers are more averse to risk than managers of private or collective enterprises, especially when confronting complex and dynamic environments (Jefferson et al., 1992). On the other hand, privately-owned enterprises exhibit a stronger propensity for risk-taking, innovation and proactiveness in their investment decisions (Tan, 1996). Scholars also find that collectively-owned firms are more adaptive and innovative than state firms but less proactive and aggressive than private businesses (Jefferson et al., 1992).

To summarize the above, I have reviewed the literature in the following fields:

(1) Relationship between ownership structure and firm performance;
(2) Relationship between diversification strategy and firm performance in developed countries and emerging economies;
(3) The motives for a firm to diversify, including ownership structure;
(4) All the above issues in the context of China;

To summarize the literature on developed countries and developing countries, I document and compare the research result in Table 3-2. I have found discrepancies

between the research in developed countries and developing countries. For studies on ownership concentration, scholars have found a non-monotonic relationship between ownership concentration and firm performance in both developed and developing markets. However, the inverted U-shape relationship is much steeper in developing countries. For ownership identity, scholars found that government ownership is inferior to other types of ownership in both markets. For firm diversification, generally scholars have found a negative relationship between firm diversification and firm performance in developed countries. However, they found a positive relationship in developing countries.

Based on this review, I identified several areas in which additional research could be completed, to address issues and questions that remain unresolved.

(1) Scholars have done quite an amount of research on diversification in emerging economies. However, there is still potential for research to study diversification strategy in developed countries and developing countries. The emerging phenomenon of diversification in developing countries heightens the need to identify the reasons for the emergence of this phenomenon (Why do the firms choose to diversify?) and its consequence (How does this strategy affect a firm's performance?)

(2) Studies on a firm's ownership structure in emerging economies have produced ambivalent sets of results. Further, few studies have linked these firms' diversification strategy with the transition of a firms' ownership structure. By linking diversification strategy to ownership structure, I hope to better

understand the motivations, consequences and implications of firm diversification on firm performance from a perspective that links the macro effect (China's institutional transition environment) and micro effect (firm ownership transition and diversification strategy) together.

The remainder of this research focuses on providing an examination and explanations for the issues mentioned above. I will explore the motives of firms to diversify in the context of China, and go on to investigate this strategy's implication on firm performance. The next chapter outlines hypotheses as related to these questions, and as grounded in existing research in this field.

CHAPTER 4

HYPOTHESES DEVELOPMENT

In this chapter I establish several hypotheses, which predict the relationships between ownership structure, firm's diversification strategy and firm performance. The predictions are grounded in the theoretical background and previous empirical results mentioned in chapter two. In developing these hypotheses, I also take into consideration the unique context of the China market, which was discussed in detail in chapter three.

The first hypothesis predicts the relationship between ownership concentration and a firm's diversification level. Hypotheses two and three investigate the relationship between ownership identity and diversification level. In these two hypotheses, the first one (H2) studies the relationship between state ownership and a firm's diversification level and the latter one (H3) examines the effects of legal person shareholding on a firm's diversification strategy. Hypothesis four predicts an inverted u-shape curvilinear relationship between a firm's diversification level and its performance. Then, I explore the relationship between firm diversification and firm performance conditionally, such as under the condition of concentrated versus distributed ownership concentration (H5) and under the condition of majority state versus legal person shareholdings (H6). In the last part of this chapter, in hypothesis

seven, I integrate the performance implications of a firm's diversification strategy into Rumelt's diversification classification.

4.1 Ownership Concentration and Diversification Strategy

Many emerging economies, such as China, lack effective internal and external governance mechanisms that can reduce traditional principal-agent problems (Carlin & Aghion, 1996; Khanna & Palepu, 1997). In addition to these problems, many of these economies have an under-developed institutional infrastructure with a lack of property rights-based legal system that protects minority shareholders (La Porta, Lopez & Shleifer, 1999; Peng & Heath, 1996; Williamson, 1991).

China, as one of the world's largest emerging economies, also suffers from a lack of internal and external effective financial infrastructure. Scholars argue that managers of the firms in China (especially SOEs) have a strong incentive to diversify because they may have a feeling of power and prestige after diversification (Stulz, 1990), or a manager's compensation is linked with firm size (Jensen & Murphy, 1990; Tan & Li, 1996). Further, diversification can make a manager more indispensable to a firm so that managers can ensure their positions through this approach (Shleifer & Vishny, 1988).

A firm's diversification strategy may be more complicated if I take a firm's ownership concentration into consideration. Coase (1937) argues that the agency

problem can be resolved through concentrated ownership. As the concentration of a firm's ownership increases, the level of asymmetric information between management and large shareholders prevents the managers from exploiting the firm for their own purposes (Shleifer & Vishny, 1988). Additionally, most of the listed companies in China are only partially privatized so that their ultimate ownership belongs to the state. Therefore, an interesting phenomenon is observed in China's listed companies: managers have very low cash flow rights (ownership) while very high control (voting and decision rights) on the firm. The separation of cash flow rights and control can result in severe agency problems. For example, when the ownership concentration is at a low level, the management would have more power and freedom to participate in strategic decision making. Thus, top management teams will lack the basic incentive to enhance a firm's performance and may be concerned more about the encroachment of the firms' assets through various strategic decisions such as diversification when the ownership concentration is at a low level (Khanna & Palepu, 1999).

Diversification strategy is one such important strategy because as I showed in the previous paragraph, when a firm has a low ownership concentration it is more susceptible to severe agency problems. There is a greater chance of expropriation. Diversification strategy is one feasible way for the management to increase their level of entrenchment. Most management teams of SOEs are appointed by the government or have a very close connection with the government. These managers might increase entrenchment activities to avoid organizational restructuring activities that may

displace them (Djankov, 1998). In addition, minority shareholders are even more likely to be exploited if managers use a pyramid ownership structures to advance their interests (Djankov, 1998). Hence, I expect to find a negative relationship between firm's ownership concentration and its diversification level.

Hypothesis 1 For China's listed companies, there is a negative relationship between firm's ownership concentration and diversification level.

4.2 Ownership Identity and Diversification Strategy

4.2.1 State Ownership

Both China's central government and local government hold a large portion of state-owned shares in listed companies. State shareholdings are various and complicated. Shareholders in this category may be government agencies, government representatives, state-owned enterprises (SOE) and even legal persons who have a small property relationship with the government (Chen & Gong, 2000).

A significant stream of research on state-owned organizations has demonstrated that the government is inefficient in monitoring firm performance (Aggarwal & Agmon, 1990; Newbery, 1992). State ownership is argued to lack the basic incentive for closely tracking the performance of firms (Andrews & Dowling, 1998). Thus the previous literature has argued that governmental agencies will not be related to diversification strategy. Empirically, Ramaswamy et al., (2002) find no relationship

between state ownership and firm performance in India.

This relationship might hold as well in the China context. First of all, scholars have found that state ownership has been demonstrated to be ineffective in its monitoring role to enhance the performance of China's listed companies (Xu & Wang, 1997). Additionally, as I have mentioned above, government ownership is heavily represented in most of the SOEs' boards in China. Thus it is not surprising for managers to be greatly concerned about their relationship with government officials, as it becomes an issue of maintaining management positions (Chen, 1998).

Therefore, the management of an SOE would have an incentive to expropriate the shareholders. Their incentive to expropriate depends on the degree of divergence between ownership and control (Claessens et al., 1999). As I discussed above, the situation in the Chinese listed companies is that managers have high control rights while they have low cashflow rights. In the case of an SOE, the divergence between low cashflow right of the management and high control rights is maximized. Thus, the incentive to expropriate by diversifying the company would be maximum when the state shareholding is distributed. However, as the state shareholding increases its stake, the divergence between cashflow rights and control rights would become smaller. Thus, the management would have less incentive and ability to expropriate so that the diversification level would be decreasing accordingly. Therefore, I raise the following hypothesis:

Hypothesis 2 For China's listed companies, the proportion of state ownership will be negatively related to firm's diversification.

4.2.2 Legal Person Shareholdings

Compared to the state shareholder, legal person shareholders do not have to consider political objectives and thus can influence the firm to move in the direction of profit maximization (Xu & Wang, 1999). Thus legal person shareholders are expected to play a positive role in monitoring the management. Legal person shareholders in China are not only motivated to pursue the goal of profit maximization; they also are better equipped than State owners with the power and ability to monitor a firm's management (Tan, 2002). Unlike the representatives of state ownership who are appointed by the government, 'representatives of legal person shareholders are elected to the board of directors and the supervisory committee' (Sun et al., 2002). 'Legal person shareholders have access to corporate inside information, and the right to question chief officers at any time about operations of the firm' (Xu & Wang, 1997).

Although legal person shareholders can provide effective monitoring of managers, when the concentration of legal person shareholding exceeds a moderate level, minority shareholders are exposed to expropriation problems because of weak governance and an under-developed institutional environment in China. Here the expropriation refers to the agency problem between block-holders (legal person) and minority shareholders. The literature has documented both theoretical arguments and

empirical findings in developed countries (Wolfensohn, 1998). Claessens et al. (1999) finds that financial institutions whose shareholdings in firms exceed a certain level disregard the interests of minority shareholders. In emerging economies, the ability to monitor a firms' management with such an ownership structure is also in question (Khanna & Palepu, 1999). The existing literature shows that high information asymmetry exists in emerging economies, so that it may be more difficult to refrain the block-holders from pursuing their own interests in the cost of minority ones (Brickley, Lease, & Smith, 1988; David, Kochhar, & Levitas, 1998).

Diversification strategy is an important strategy under such circumstances. When the ownership level controlled by legal person is relatively low, legal person shareholders are expected to effectively monitor the management and restrict the firm from over-diversifying. However, as a legal person shareholder controls more ownership in a firm and becomes a block holder, the advantage of expropriating minority shareholders' interest will outweigh the cost of over-diversification. In Southeast Asian countries such as Malaysia and Thailand, scholars find that controlling shareholders transferred resources out of firms for the benefits of themselves (La Porta et al., 2002). La Porta et al (2002) named this type of transfer as tunneling. Tunneling might cause a seriously negative impact on firm performance. Small shareholders in China also face a similar situation as that of Southeast Asian countries. As they have disadvantages in information as compared to block-holders, they are vulnerable if block-holders want to expropriate assets and resources through tunneling, especially when the legal protections on the minority shareholders are

limited. At that time, if the management team also has the incentive to diversify for the consideration of their own interests as mentioned above, the two would align the interests and take steps for the firm to diversify. Thus I suggest the following hypothesis:

Hypothesis 3 For China's listed companies, firm's diversification will be first negatively and then positively related to the proportion of ownership controlled by legal person.

4.3 Ownership Structure, Diversification Strategy and Firm Performance

4.3.1 Diversification Strategy and Firm Performance

The existing literature generally suggests that there are both advantages and disadvantages for firms to diversify. In the context of emerging economies, scholars have proposed different arguments upon this issue. In the first place, diversification can yield unique value and attractiveness in an emerging economy. In an imperfect and under-developed market such as China, focused firms face more difficulty than diversified firms to survive because bank loans are limited and diversified firms can obtain the necessary capital from other sources instead of external debt rather than single business firms (Denis et al., 1997). This situation is more problematic for firms in an emerging economy as minority shareholders are not protected well so that it can be rather difficult for firms to acquire capital from public sources (Berger & Ofek, 1995). Additionally, the enforcement of law is weak and contracts can not ensure a

firm's security. Diversified firms can turn to internal transactions to avoid this instability (Palich et al., 2000).

As to the capital market, imperfections in external capital markets in China should make internal capital markets relatively more attractive for firms. Information asymmetries increase the cost of external funds over internal funds. Diversification allows firms to allocate the capital more efficiently using the internal capital market instead of the external capital market (Williamson, 1985). The headquarters of a diversified firm can move capital from business sectors that have high cash flows but poor investment opportunities to the sectors that have low cash flows but excellent investment opportunities (Stein, 1997). As most emerging markets suffer from a scarcity of well-trained people, firms can allocate the skilled talents more efficiently to the most needed position by diversification (Khanna & Palepu, 1997). All the above factors mentioned suggest that diversification may benefit a firm's performance.

When a firm's diversification level reaches a certain point; however, a firm's advantage from diversification can diminish and the problems can increase. Scholars argue that as firms continue to diversify, control costs and coordination costs can rise accordingly (Markides, 1992). Furthermore, generally speaking, related diversified firms can tap the benefits from diversification more easily than unrelated diversified firms to create value. Therefore, the literature suggested that related operations should

outperform unrelated operations (Singh & Montgomery, 1987). Thus there should exist an optimal point for firms to diversify.

Palich et al. (2000) argue that the marginal costs of diversification increase rapidly as diversification hits a certain high level. Scholars contend that aspects such as distinctive competencies of strategy implementation may be critical for successful diversification. If the appropriate resources are lacking, diversification is unlikely to be successful and may result in poor performance (Berger & Ofek, 1995). Many emerging economies such as China lack vital resources such as skilled expertise and abundant capital to support the higher diversification of a firm. As a matter of fact, high levels of diversification require such resources as a support. In an environment where such resources are lacking, over-diversification is expected to deteriorate a firm's performance. As a result, firm performance may suffer when a firm is found to have over-diversified and over-invested in unrelated business sectors. Thus, I expect to find an inverted-U shape relationship between firm's diversification level and its performance.

Hypothesis 4 As a firm's diversification level increases, its performance will first be positively and then be negatively related to its diversification.

4.3.2 Ownership Concentration, Diversification Strategy and Firm Performance

When a firm's ownership concentration is low, it has many owners of small shares. In practice, these owners may not only be unable to participate in the ongoing

management of the firm, but also have no enough incentive to monitor the management of the firm (Morck et al., 1988). A free-rider problem then emerges: small owners expect other shareholders to monitor the management and when every one has this similar expectation, no one exactly performs this necessary duty (Hill & Snell, 1989). Under such conditions, management will have a greater independent influence on a firm's critical decisions and thus can exert substantial impacts on a firm's strategies. Therefore, managers might increase entrenchment activities to resist organizational change, to make them more indispensable and to pursue individual interests (Stulz, 1990). Accordingly, shareholder's interests and firm's performance will deteriorate.

When a firm's ownership structure is concentrated, large block holders will have both the incentive and power to effectively monitor the firm's management (Hill & Snell, 1989). Compared to distributed shareholders, block-holders have lower coordination costs to execute their monitoring function because they have fewer owners to coordinate, they can use their voting power to require the management to reveal information and thus reduce the information asymmetry (Tosi & Gomez-Mejia, 1994). In such an environment, if a firm's management chooses to diversify, scholars contend that this reflects the shareholders' interests (Khanna & Palepu, 1997). The shareholders may consider diversifying the firm because it is easier for the firm to raise capital (Palich et al., 2000), or because it can trade off employment and firm profitability by building an internal labor market (Djankov, 1998). In other cases, shareholders may be concerned about the insecurity of outside contracts and market

failure (Khanna & Palepu, 1997). In such a situation, diversification under effective monitoring conditions can enhance a firm's performance.

Therefore, before firm diversification reaches a moderate level, ownership concentration makes the marginal benefit of firm diversification increase while the marginal cost remains unchanged. The net effect is that the marginal benefit of firm diversification becomes higher than marginal cost.

However, when a firm's ownership concentration reaches a certain level and results in the emergence of block-holders, the effectiveness of monitoring and thus the positive impact on a firm's performance may be in question again. Like other emerging economies, China lacks effective internal and external governance mechanisms and there exists serious information asymmetry between large shareholders and minority shareholders (Khanna & Palepu, 1997). It is highly possible for large shareholders to disregard the interests of minority owners and expropriate them through various approaches such as excessive executive payment and price transferring (Shleifer & Vishny, 1997). The Asia Financial Crisis exposes that the controlling shareholders transferred resources out of firms for the benefits of themselves (La Porta et al., 2002). Such a condition may result in the adverse effect of managers and employees who will reduce their efforts for enhancing the firm's profitability, and discourage minority shareholders to continue their investment (Shleifer & Vishny, 1997). Additionally, diversification is often used by block-holders as a good way to transfer the resources to their own hands and expropriate

minority owners' interests (Li et al., 1998). Thus, after firm diversification exceeds a certain level, ownership concentration makes the marginal cost of firm diversification increase while the marginal benefit remains unchanged. The net effect is that the marginal cost of firm diversification becomes higher than marginal cost. In this situation, I expect that under a relatively high ownership concentration level, the cost of agency problems and expropriation problems would outweigh the benefit of diversification and more importantly, diversification could be utilized as a tool to exacerbate this imbalance between majority and minority shareholders, therefore deteriorating firm's performance.

In summary, I contend that the ownership concentration would enhance the marginal benefit of diversification on firm performance before firm's diversification reaches a moderate level. After a firm's diversification exceeds a certain level, ownership concentration would increase the marginal cost of diversification on firm performance. Therefore, I raise the following hypothesis:

Hypothesis 5 Ownership concentration would make firm diversification have a greater positive impact on firm performance up to moderate levels of diversification, after which it would make firm diversification have a greater negative impact on firm performance.

4.3.3 Ownership Identity, Diversification Strategy and Firm Performance

In chapter two and chapter three, I have reviewed studies on ownership identity and firm performance conducted in the China context. The literature documents that ownership identity does have a critical impact on a firm's performance and different category of shareholdings do have significantly different effects when compared to each other (Berkman et al., 2002; Xu & Wang, 1997). For example, scholars have provided both theoretical and empirical arguments on state share's inefficiency in enhancing firm's performance (Dewenter & Malatesta, 2001). Therefore, when exploring the relationship between diversification strategy and firm performance, it may give me more insightful findings if I take the ownership identity into consideration.

Diversification is a double-edged sword for a firm. In the previous chapters I have reviewed both the benefits and costs for a firm in a diversification strategy. Diversification can benefit the firm when there is effective monitoring of shareholders, especially in the emerging economies. Diversified firms can employ a number of mechanisms to create and exploit market power advantages (Caves & Christensen, 1980). Diversification can also provide a firm with different sources of capital other than external ones because it can provide an efficient internal capital market (Lang & Stulz, 1994). Diversified firms can shift capital between business sectors to achieve the efficiencies that are unavailable to single-business firms (Gertner et al., 1994). However, the costs of diversification under inefficient monitoring are also conspicuous. Without effective supervision, management team can entrench and expropriate through over-diversification. The lack of supporting

resources can deteriorate the firm performance when a firm is overly diversified (Palich et al., 2000). Thus, it is important to explore the relationship between diversification and firm performance on the condition of the effectiveness of shareholder's monitoring, and under the type of shareholder.

Among all the Chinese listed companies in 2002, almost one-third has state shareholding as the majority ownership (Table 3-1). State ownership has been criticized as being inefficient in monitoring firm's management (Majumdar, 1998) and as contributing to corruption (Megginson et al., 1994). Thus the agency problem of a firm whose majority shareholding is controlled by the government is significantly worsened (Boycko et al., 1996). Government shareholders have neither enough incentive nor eligible expertise to effectively supervise management to pursue the profit maximization of the firm (Xu & Wang, 1997). Additionally, as one of the biggest emerging economies in the world, China's capital market and financial infrastructure are far from well developed and personal connections play a critical role in a firm's daily business operations, sometimes even more so than contracts. Both the establishment and enforcement of law are limited and the information asymmetry problem is severe between block shareholders and minority shareholders (Tan, 2002). Thus, like those in other emerging economies, firm managers of China's SOEs, which are mostly owned by the Chinese government, have a high propensity and chance to entrench and expropriate (Dharwadkar et al., 2000). As mentioned above, a diversification strategy offers the management both an opportunity and an

excellent approach to pursue individual interests (Li et al., 1998). I expect these management entrenchment activities to lead to a loss in shareholder benefits.

As to China's listed companies, the second largest group are those companies whose majority ownership is legal person shareholding (Table 3-1). Legal person shareholders do not have to consider the political objectives which confine the state shareholding from maximizing firm's profit (Claessens et al., 1999). Additionally, as the representatives of legal person shareholders are elected to the board rather than appointed, they may have more incentive and capability to effectively monitor the firm's management. The legal person shareholders face more stringent budget constraints so that they may concern more about a firm's profitability and its financial condition (Wolfensohn, 1998). Furthermore, legal person shareholders tend to hold board meeting more frequently and more regularly to enforce direct monitoring on the management (Sun et al., 2002).

Empirically, scholars have found legal person shareholding more efficient in monitoring the management than state ownership (Xu & Wang, 1997). As I have argued above, in an emerging economy such as China, with its underdeveloped capital and labor markets, shareholders may consider diversifying the firm to deal with the market failure of the external market and to allocate the capital more efficiently (Tan, 2001a). Through diversification, a firm can acquire capital other than by the issuance of external debt, it can allocate the labor force inside the firm more efficiently and it does not need to rely on contracts when the enforcement of law is

weak (Khanna & Palepu, 1997). All these considerations can bring benefits to a firm's performance.

In summary, both state shareholders and legal person shareholders use diversification as an important strategic tactic. The effectiveness of diversification on a firm's performance is contingent on the monitoring role of shareholders. When the monitoring of shareholder is weak, such as it can be with state shareholders, diversification tends to result in the deterioration of a firm's performance. However, when diversification is encouraged under the efficient monitoring of management, such as it can be with legal person ownership, it is likely to benefit rather than harm a firm's performance. Thus I introduce the following hypotheses.

Hypothesis 6a State shareholding would make firm diversification have a greater negative impact on firm performance as diversification increases.

Hypothesis 6b Legal Person shareholding would make firm diversification have a greater positive impact on firm performance as diversification increases.

4.4 Rumelt's Classification

In his book "Strategy, Structure, and Economic Performance", Rumelt studied the evolution of large scale industrial enterprises in U.S. in the period 1949-1969. Following Wrigley (1970), Rumelt developed and expanded a systematic classification scheme to categorize 100 U.S. firms (drawn from Fortune 500) into

different diversification groups. I applied the same approach as used by Rumelt on China's listed companies and classify them into different diversification categories to study the evolution patter of these firms, which will be discussed in details in chapter six.

Using three measures (the Specialization Ratio, the Related Ratio and the Vertical Ratio), Rumelt defined six different categories of firms: Single Business, Dominant-Vertical, Dominant-Unrelated, Dominant-Constrained/Linked, Related-Constrained/Linked and Unrelated Business/Conglomerate. Following the same method, I classified China's listed companies into these six different categories by calculating each firm's diversification measures (the Specialization Ratio, the Related Ratio and the Vertical Ratio). The details of the calculation and classification procedure will be described in chapter six. For the last set of hypotheses in this chapter, I establish my predictions about the performance implications for these classified companies.

4.4.1 State-controlled Firms

As mentioned above, I predict that state ownership is positively correlated with a firm's diversification level from the perspective of agency problem, manager's entrenchment incentive and the inefficient monitoring role of government ownership (Sun et al., 2002). Furthermore I predict that under the majority state shareholding, a firm's performance is negatively correlated with firm's diversification level. Researchers have pointed out that managers in SOEs have a high propensity, and

more importantly, the power to use various methods to entrench and expropriate because of the unique agency problem of state owned enterprises and the lack of incentive of state shareholding to supervise managers' behaviors (Sun et al., 2002). Additionally, as an emerging market, China is reported to have an under-developed market of labor (Xu & Wang, 1999) and illiquid capital market (Khanna & Palepu, 1997). Qualified managers are in supply as capital for venture capitalists. Single business firms stand out in such a circumstance as this form of firm provides the managers the least opportunity to entrench and adjust to the China market's lack of human and capital resources. Thus I make the following prediction:

Hypothesis 7a For the firms with the state ownership as majority, Single Business firms will show the best performance, followed by Related-Constrained firms. Unrelated Business firms will show the worst performance.

4.4.2 Legal Person-Controlled Firms

In the previous part of this chapter, I predict a u-shape curvilinear relationship between legal person shareholding and a firm's diversification level. Additionally, I also predict a positive relationship between diversification level and firm performance when the legal person shareholding is dominant. I made the above hypotheses on the assumption that legal person shareholders are more effective in monitoring a firm's management compared to state shareholders because they do not have to consider the political objectives and they are confined to more stringent budget constraints (Claessens et al., 1999). Furthermore, legal person shareholders may consider

diversifying the firm as a critical approach to enhance firm performance and their own interests because through diversification they can acquire capital other than the sole source of bank loans (Xu & Wang, 1997). This is especially helpful in the context of emerging economies where capital markets are far from fully-developed and financial institutions not mature (Khanna & Palepu, 1997). In addition, diversification can help firms to allocate labor more effectively and substitute external unreliable contracts with internal transaction when the law enforcement is weak and the problem of market failure is severe (Sun et al., 2002). On the contrary, if a firm remains in one or limited business sectors, it may face a significant number of disadvantages. For example, a single business firm has no access to investment other than external capital sources—debt and equity—which can make it more costly to raise capital than by internally generated funds, especially in emerging economies where the venture capitals and capital markets are not so active (Lang & Stulz, 1994). However, over-diversification may also raise problems. Without enough resources such as highly skillful expertise, financial regulations, basic infrastructures and highly liquid capital to support the firm, on-going diversification will result in deteriorated firm performance (David, Kochhar, & Levitas, 1998; Markides, 1992). Thus I expect that there exists an optimal level of diversification in legal person controlled firms. As to Rumelt's classification which will be described in details in Chapter six, firms are categorized into different groups according to their diversification levels. Generally, firms with the lowest level of diversification are categorized into the Single Business sector and firms with the highest level of diversification are categorized into the Unrelated Business sector. The Related-Linked sector consists of those firms whose

diversification level is in between single business and unrelated business firms. I argue that the Related-Linked is the stage of diversification that is closest to an optimal level of diversification. Thus I raise the following hypothesis:

Hypothesis 7b For the firms with legal person shareholding as majority, Related-Linked firms will perform best, followed by Unrelated business firms. Single Business firms will show the worst performance.

CHAPTER 5

DATA AND METHODOLOGY

In this chapter, I discuss the data I developed and will use for the hypotheses tests. I also describe the econometric methodology used in the construction of the model. In the first part of this chapter, I will cover the details about the time range for this study, the sources for the data and the characteristics of the firms found in my sample. Next, I will describe the measures used in this research in the second part. Finally, I depict the econometric techniques.

5.1 Data

The original data sample is a pooled, cross-sectional database consisting of the revenue breakdowns and business sectors of all the China's listed companies from 1991 to 2002. I collected the data from several websites (www.sunsc.com.cn; www.sse.com.cn; www.sse.org.cn; www.cnlist.com), from which I could find the annual reports of every China's listed company (Table 5-1). To ensure that I could obtain the maximum possible number of observations, I first created a list of all the codes of China's listed companies from a software on China's listed companies: Tinysoft (www.tinysoft.com). Next, I inserted these codes into a search engine of

those websites and found the information of the corresponding companies one by one. Although this method makes full advantage of internet sources, it raises the concern about the reliability of the data from those websites. To inspect the reliability of the data, I compared the data I compiled with other information sources such as the website of CSRC (China Securities Regulatory Commission) and the websites of the listed companies. I also collected the accounting and stock market data of China's listed companies from Bloomberg and DataStream. To make sure that I have the most reliable data I can possibly get, I also compared the above data with data obtained from the Taiwan Economic Journal (TEJ). After I downloaded the information for each listed company for all the available years from CSRC, Bloomberg, Datastream and TEJ, I created a unique code for each observation (list code plus year) in every data source. Then, I compared these codes in the list to the initial code list that I obtained from Tinysoft. This enabled me to combine the several different data sources by making an observation-to-observation comparison. For those with over-lapping codes, I used the Tinysoft data as the benchmark and complimented the list by adding in those codes that were not available in Tinysoft.

In these comparisons, I found that most of the data after 1997 are consistent across all the different data sources. However, the data before 1997 have the following problems: they are either inconsistent in different sources or missing in any of the database I mentioned above. Given these features of the data, I used several

guidelines to construct the database. First, I used the figures that were reported with consistency across the different data sources; secondly, if there were inconsistencies in data across sources, I used the data from annual reports; thirdly, where data at the business sector level were missing from all sources, I did not include that company in my analyses. Following these guidelines, my sample numbered 1208 companies and 7043 observations, across the 1991 to 2002 period.

I choose the time period to begin from 1991 because the Shanghai and Shenzhen Stock Exchanges were initiated in that year. The year 2002 is one for which I could obtain the most updated and complete information as available from public information sources about China's listed companies. For each listed company in every fiscal year, I collected the following information:

(1) All the business sectors in which a firm is active. For example, Shan Dong Dong-E E-Jiao has businesses in plastic products, plastic materials, drugs, medicinal, biological products and surgical and medical instruments in year 2001 (Table 6-3).
(2) The corresponding two, three and four digit SIC codes to the business sectors. For example, for Shan Dong Dong-E E-Jiao Co., Ltd, the different digit level SIC codes for one of its businesses, plastic products, are 30, 308 and 3089.
(3) The revenue breakdowns for every business sectors in every year from 1991 to 2002. Again if I take Shan Dong Dong-E E-Jiao as an example, in 2001, the

revenue percentage for plastic products is 84.6 percent.

(4) For each company's ownership structure, I collected all the information about types and percentages of a company's top ten largest shareholders.

(5) I collected the following information for each company in each year: total assets, total sales, total debt and total equity.

I collected my data from various data sources. I composed the revenue breakdowns for a firm's business sectors from each firm's publicly-available annual reports from the websites I mentioned above. As this information is in Chinese, I translated the business activities into English and found the corresponding SIC codes for each sector. I derived the information on the top ten shareholders' shareholdings and identities from these companies' websites, their annual reports and websites of Shanghai and Shenzhen Stock Exchange. I obtained the total assets/sales/debt/equity data of China's listed companies during 1991 to 2002 from DataStream and Bloomberg as well as the website of CSRC (China Securities Regulatory Commission).

5.1.1 Sample Description

The listed companies in China in the data cover about ten broad industry categories (Agriculture, Forestry & Fishing, Mining, Construction, Manufacturing, Transportation & Public Utilities, Wholesale Trade, Retail Trade, Finance, Insurance

& Real Estate, Services and Public Administration) and twenty-one sub-categories according to the SIC code standard.

Table 5-2 documents the distribution of the sample firms in 2001 across industry categories on the 2-digit level of SIC code. From the table I find the distribution of China's listed companies in different industries: More than half of the companies are doing business in a manufacturing industry (59.68 percent). The second largest group consists of those companies that operate in the wholesale and retail trading industry (10.75 percent), the transportation and public utility sector (10.14 percent), finance, insurance and real estate (6.48 percent), and general services (4.66 percent). Those companies in the agriculture, mining, construction, and public administration industries are comparatively rare in the whole group of listed companies.

As to the ownership identity, the majority ownerships for China's listed companies are state shares, legal person shares and A-shares. For the state shares, they are mostly represented in the industry of Construction (33.89 percent), Mining (32.71 percent) and Agriculture (30.72 percent). However, legal person shares are mostly represented in Services (36.08 percent), Mining (35.24 percent), Public Administration (35.21 percent) and Manufacturing (31.02 percent). This may reflect the different emphasis of state shareholdings and legal person shareholdings put on the different industries. Another possible explanation is that the central and local

government pays special attention on some industries such as mining and agriculture, which are not allowed to be controlled by other forms of shareholdings. Apart from the previous two ownership identities, A-share has its most weight in Wholesale and Retail Trade (41.06 percent), Public Administration (38.87 percent) and Finance, Insurance and Real Estate (37.44 percent). As A-shares are all tradable, it shows that the liquidity of shares is the highest among these three industries. Another interesting finding is that B-share gets its highest percentage in the industry of Service (7.16 percent).

Table 5-3 documents the evolution trend of China's listed companies' ownership structure from 1991 to 2002. I selected four years (1992, 1995, 1998 and 2001) out of this period to trace a general trend. By looking at the trend of the selected four years, I find the following evolution pattern. State shares seem to continually decrease in all the listed companies on Shanghai and Shenzhen Stock Markets. During the nine years, the average stock held by state shareholders has decreased from 46.35 percent in 1992 to 33.27 percent in 2001. The decreasing rate is about 28.22 percent and 3.13 percent per year. The legal person shareholding, on the contrary, is showing a steady trend of neither increase nor decrease. Another big increase occurs in the A-shares, which rises from 11.57 percent in 1992 to 32.84 percent in 2001, accounting for 183.83 percent of rise in nine years. Take a more detailed look, I find that besides the shrink in state shareholding, the percent increase of A-shares also come from the reduction

in B-shares (from 7.88 percent in 1992 to 3.29 percent in 2001). On the whole, the tradable shares are increasing (from 25.65 percent in 1992 to 41.44 percent in 2001) even though the increase is volatile. However, the non-tradable shares in all are decreasing bit by bit (from 74.34 percent in 1992 to 59.36 percent in 2001).

Table 5-4 describes the ownership concentration for China's listed companies in 2002. In general, the ownership of China's listed companies is highly concentrated. On average, close to half (43.47 percent) of the shareholdings are controlled in the hand of the largest shareholder. Additionally, more than half (58.51 percent) of the shareholdings are controlled by the largest five shareholders.

5.2 Measures

5.2.1 Dependent Variables

In my thesis I will develop two sets of measures for the dependent variables. One set will measure the performance of a firm and the other will measure the diversification level of a firm.

As to the performance of a firm, I use ROA (return on assets) as one important measure. I calculate ROA as the ratio of net income to total assets, which is an effective measure of firm's ability to generate profits based on its assets. Many

scholars have used ROA as the measure of performance in the previous research (Demsetz & Lehn, 1985; Denis & Denis, 1994). This accounting based measure has its unique attractiveness. For example, unlike stock market returns, ROA is not affected by the divergence between shareholders and managers (Prowse, 1992). Additionally, it is easier to compare the results of my study to the previous similar studies because of the wide use of ROA as a measure of performance. ROE, which is defined as the ratio of return to equity, is another frequently used measure of firm performance. However, ROE is not used so commonly in the study of China's listed companies. The equity structure of China's listed companies is so complicated (it has state, legal person, individual, employee and foreign shares and the delineation between public and private ownership is obscure) that it may arouse much confusion when scholars are defining which equity to use in the formula. In addition, it is not convenient to compare horizontally between different ROEs of different studies if the definition of equity is in question. ROS, the ratio of return to sales, is another not so frequently used measure of performance. Compared to ROA or ROE, however, ROS has its obvious disadvantage that it does not reflect the firm's performance so accurately as ROA/ROE and it is more a measure of earning rate of sales. Therefore, I use ROA as the sole accounting based measure of performance in my study.

However, ROA also has its limitations even though it has been widely used by researchers. It is possible that management can manipulate the accounting reports of a

firm, especially in an emerging economy such as China because of the weak legal enforcement and low requirement of information exposure. Accounting returns include depreciation and inventory costs and thus may bias the accuracy of performance measurement. Therefore, scholars also seek measures other than accounting-based figures to measure performance.

One alternative, Tobin's Q, a market based measure, is widely used in the existing literature. Tobin's Q combines capital market data with accounting data and implicitly minimizes distortions due to tax laws, accounting conventions and industry-related biases (Prowse, 1992). I use Tobin's Q in my study as the other measure of firm performance. I define Tobin's Q as the ratio of the sum of the market value of equity and the book value of liabilities to the replacement value of a firm. As it is very difficult to estimate the replacement value of a firm for China's listed companies, I substitute it with the book value of total assets.

In summary, I calculate ROA and Tobin's Q in the following ways:

ROA= Net Income/Total Assets;

Tobin's Q= (Market value of equity + Book value of debts)/Book value of assets.

Another important measure I develop is that for the analysis of a firm's diversification. According to the existing literature, scholars generally use two

different groups of values for the measurement of diversification. The first group includes two popularly used indices: herfindahl and entropy (Lubatkin, Merchant & Srinivasan, 1993; Amit & Livnat, 1988; Baysinger & Hoskisson, 1989). The herfindahl and entropy measures are both based on SIC codes and have been widely used recently in the research of diversification. I develop both indices. Using the information on revenues by product category for China's listed companies, I calculate the indices in the following manner:

Herfindahl indices for the year t:

$Hr\_t = 1-? (Pi)^2$; (Pi refers to the revenue percentage of the ith business sector)

Entropy indices for the year t:

$Er\_t = ?Pi*\log(1/Pi)$;

The values of indices vary from zero to some figure above one. When the index is equal to zero, it means that a firm has not diversified at all, or the firm has only one single business. The greater the value of the index, the greater the diversification level of a firm.

The other group of value to measure the firm's diversification level is called the concentric ratio. The concentric ratio was originally developed by Montgomery and Wernerfelt (Foss, 1997, Montgomery & Wernerfelt, 1988). It is calculated as CR_t =

$\sum_j Pj \sum_i Pi * dij$ for year t, where Pi and Pj are the revenue percentages of a firm's different business sectors and dij takes a value of zero if i and j are four-digit products within the same three-digit industry, one if they are in different three-digit industries but the same two-digit industry, and two if they are in different two-digit industries.

5.2.2 Independent Variables

In chapter four, I established the hypotheses for this thesis. The hypotheses predict the relationships between ownership structure, diversification strategy and firm performance. Firm performance is an exogenous variable; it is always predicted to be dependent on other factors. Meanwhile, diversification is an endogenous variable: it is used as an independent variable in some of the hypotheses but as a dependent variable in others. Ownership structure is regarded as an independent variable that influences diversification and performance. There are two important aspects that I measure to describe a firm's ownership structure: ownership concentration and ownership identity.

I used the percentage of the shareholdings of the top five and top ten largest shareholders as the measure of firm's ownership concentration. These two measures have been widely used in the previous researches (Claessens et al., 1999). In addition, I calculated the herfindahl concentration index to measure the firm's ownership concentration level. I defined the herfindahl concentration index as the sum of

squared percentages of shareholdings held by the top five largest shareholders. A high herfindahl index means that a firm's ownership is relatively concentrated in its largest shareholders while a low index means that a firm's ownership is distributed.

Herf5=$O_1^2+O_2^2+O_3^2+O_4^2+O_5^2$ (Oi refers to the shareholding of ith largest shareholder);

In the hypotheses I raised the issue of two types of shareholders: state shareholder and legal person shareholder. Thus I define a measure to represent each one.

State_t: the percentage of shareholding held by the State in year t;

Legal_t: the percentage of shareholding held by Legal Person in year t.

5.2.3 Control Variables

I included a variety of control variables in my model. Following the previous literature on China's listed companies, the control variables in my study include: firm size, capital structure, firm age, IPO age, stock exchange, industrial sectors and year of observation.

Firm size is an important factor which may exert critical impact on firm's performance. Fama and French (1995) found that larger firms are correlated with better market performance. It should not be surprising to find larger firms associated

with better performance because larger firms may take the advantage of economies of scale and formalization of manufacturing procedure. Larger firms may also have more talented management members and have more access to external capital because banks would regard them as a much safer debtor. Thus scholars argue that firms with larger size may generate more profit and are more capable while handling with the risks in the daily operation. However, other scholars pointed out that large size may exert a negative effect on firm performance. For example, large firms have much higher management costs and coordination costs, which may hurt the firm a lot without effective controlling. This problem may be more severe in China because large firms have to consider the social responsibility and not to lay off too many employees under the pressure of the government. Thus, it is necessary to consider firm size as a control variable in the study. In my thesis I use firm's assets and firm's sales as the measures of firm size.

Another important control variable is capital structure. Like firm size, capital structure is also found to be significantly correlated with firm's performance measure such as ROA (Shama, 1995). I define a firm's capital structure as the ratio of debt to equity in my study.

The age of a firm is an important determinant of performance. Those firms with older age may be more experienced in the major business, may have more implicit

management knack and more long-term business relationships with their partners. On the other side of the coin, aged firms may have more inertia to discourage technological and strategic innovation and may be more bureaucratic and much more obtuse reacting to the environmental change. In my study, I use the year of a firm from its establishment till now (2001) as well as the year of a firm from when it had initial public offering (IPO) till now (2001) as the proxy of firm's age.

Many scholars have been involved in a dispute on whether the market or the firm strategy exerts a more important role on firm's performance (Schmalansee, 1985; Rumelt, 1991). The existing literature shows that industry effects may be determinant of firm's market value under some conditions and may account for the majority of explained variance of Tobin's Q (Schmalansee, 1985). This effect may be more evident in China's context. For example, some of China's industries such as petroleum, banking, telecommunication and electric power are still under high supervision of central government and limited numbers of firms have the authority to set foot there. Thus these firms may have the advantage of monopoly as not obtained by their peers. Sometimes the government may favor firms in the strategically important industries such as military and high-technology by subsidies or preferential tax treatment. To control the possible industry effect on firm's performance, I introduced twenty dummy variables for the twenty one different industries.

Firms in China are allowed to choose to be listed either on Shanghai Stock Exchange or Shenzhen Stock Exchange. Both the domestic and foreign floating capitals seem to favor the companies listed on Shenzhen Stock Exchange more as they are by and large relatively small size joint ventures and less controlled by the state ownership. On the contrary, generally firms listed on Shanghai Stock Exchange tend to be more of government controlled and larger size firms, which would be much more difficult for investors to hold a substantial shareholding. The difference may be a possible cause of firm's distinct market valuations and thus performance. I use a dummy variable to control the geographic stock exchange effect. I have also considered the possible effect of years (10 dummy variables) and the effect of province (31 dummy variables). All the details of variables are listed in Table 5-5. The correlation matrix of all the variables is shown in Table 5-6.

5.3 Methodology

First of all, I will establish four separate equations and use both the random effect and fixed effect GLS estimators to test hypothesis one through hypothesis four. The main reason that I use GLS here is that my data are a time-series and pooled panel data. GLS would enable me to avoid bias in addressing the problem of over time correlation and heterogeneity. In practice, I used STATA to run the GLS test. The command I used in STATA is 'XTREG', with 'RE' as the parameter to run the

random effect test and 'FE' as the parameter to run the fixed effect test. The four equations are as follows:

(1) DIV = a1 + a2*CON + B*CONTROL;

Here, DIV means the diversification measure. CON refers to the ownership concentration. I will use TOP1, TOP5, TOP10 and HERF5 to measure the ownership concentration respectively (Table 5-5). In addition, I will use three different diversification measures (Table 5-5) respectively to test this equation. B and CONTROL refer to two matrices of the estimator of control variables and control variables;

(2) DIV = a1 + a2*STATE + B*CONTROL; DIV = a1 + a2* STATE + a3*STATE^2 + B* CONTROL;

(3) DIV = a1 + a2*LEGAL + B* CONTROL; DIV = a1 + a2*LEGAL + a3* LEGAL^2 + B*CONTROL;

(4) PER = a1 + a2*DIV + a3*DIV^2 + B*CONTROL;

Here PER refers to the firm's performance, which will be measured by ROA and Tobin's Q.

(5) As to hypotheses five and six, all the relationships to be tested are conditional, which means that I will test contingent relationships between ownership structure, diversification strategy and firm performance. As is shown by table 5-5, I have four variables to measure the ownership concentration of a firm. As they have very high correlation between each two, I will use one of them

as a representative of ownership concentration. I will use the following equation to estimate the contingent effect of ownership concentration:

$PER = a1 + a2*DIV + a3*DIV^2 + a4*CON + a5*CON*DIV + a6*CON*DIV^2 + B*CONTROL;$

(6) Following the same logic of thinking, I will estimate the following equation to test hypothesis six:

H6a: $PER = a1 + a2*DIV + a3*DIV^2 + a4*STATE + a5*STATE*DIV + a6*STATE*DIV^2 + B*CONTROL;$

H6b: $PER = a1 + a2*DIV + a3*DIV^2 + a4*LEGAL + a5*LEGAL*DIV + a6*LEGAL*DIV^2 + B*CONTROL;$

(7) As for hypothesis seven, I will first calculate the average performance of firms in every diversification category and then compare the means of these groups to see whether they have significantly different performances. Following the same logic, I define those firms whose state shareholding exceeds the average shareholding and tops the shareholders as the majority state shareholding.

In this chapter I discussed the data source of my study, the variables I will use in the empirical tests and the econometric modeling techniques. I will discuss the empirical results and implications in the following chapters.

CHAPTER 6

RUMELT'S CLASSIFICATION OF DIVERSIFICATION

In this study, I followed the diversification schema developed by Rumelt (1974) to classify China's listed companies into different groups. In this chapter, I introduce the definitions, concepts and methodology of Rumelt's diversification schema, with a specific description of how I used his classification schema in the context of China.

Rumelt used three measurements to classify a firm into a diversification category: the Specialization Ratio (SR), the Related Ratio (RR) and the Vertical Ratio (VR). A firm can be classified into a different diversification group based on the above measures. The different diversification categories are: single business, dominant-vertical, dominant-unrelated, dominant-constrained/linked, related-constrained/linked and unrelated business/conglomerate.

6.1 Diversification Measure

6.1.1 Specialization Ratio (SR)

The Specialization Ratio is defined as the proportion of a firm's revenues that can be attributed to its largest single business in a given year (Rumelt, 1974). For example, suppose a firm has the business sectors such as copper, lead and oil and gas, with the sales breakdown across these sectors at 59 percent, 20 percent, and 21 percent

respectively. Then I obtain the specialization ratio of this company as 0.59 because the sales from the sector of copper are the largest of all. Following Wrigley, Rumelt defines a specialization ratio of 0.70 as the dividing line between the Dominant, and the Related and Unrelated groups (Wrigley, 1970).

6.1.2 Related Ratio (RR)

The Related Ratio is defined as the proportion of a firm's revenues attributable to its largest group of related businesses (Rumelt, 1974). For example, let us take a look at the North American Rockwell's distribution of revenues by business area in 1969. Table 6-1 shows the detailed revenue breakdowns for different business sectors of North American Rockwell. North American Rockwell has two groups of business sectors which are related closely: (1) the businesses sectors related to aerospace systems and electronics; and (2) the business sectors related to industrial and auto parts. The former was the larger, in terms of revenue percentage, so that North American Rockwell's related ratio for 1969 is taken to be 0.612. As Rumelt explains it:

> "The related ratio is particularly helpful, as this example demonstrates, in dealing with firms that are active in several unrelated areas, each of which is a diversified business in its own right. The related ratio in this case also minimizes the number of judgments that must be made in identifying whether businesses are related to one another" (Rumelt, 1974: 16).

In this example, scholars may concern whether the textile machinery business and the graphic arts equipment business were related, or whether either, or both, was related

to the parts manufacturing business. However, after introducing the concept of the Related Ratio (RR), the confusion is clarified since the related ratio would remain at 0.612.

Rumelt set the dividing line between Related and Un-related firms to be a related ratio of 0.70. Actually the 70 percent cut-off was chosen by Wrigley because "it seemed to match fairly well with the judgments expressed by informed observers" (Wrigley, 1970).

6.1.3 Vertical Ratio (VR)

The Vertical Ratio (VR) in any given year is defined as the proportion of the firm's revenues that arise from all by-products, intermediate products, and end products of a vertically integrated sequence of processing activities (Rumelt, 1974). I will provide an example of the Aluminum Company of America (Alcoa) to clarify this concept. The material flow and sales breakdown for 1969 of this company are shown in Figure 6-1. As this company has a sort of vertically related business (mining, transport, refining, primary aluminum and fabrication), Rumelt define them as related. The vertical ratio is the sum of all the revenue percentages from these business sectors. That will be 0.96.

6.2 Diversification Category

Rumelt has defined diversified firms into different categories. The basic four categories are: Single Business, Related Business (including linked-related and vertical-related businesses), Dominant Business and Conglomerates. I will describe the linked-related business, dominant business, vertical-related business and conglomerates in details in the following.

6.2.1 Linked Relatedness

There are two basic types of linked-related business firms: related-constrained and related-lined firms. Related-constrained firms are those whose business sectors stay relatively 'close to home', which means that each business was related to a firm's other businesses and all businesses could be seen as radiating from a common core. Related-linked firms are those who have had added new activities to old activities in such a way that they were eventually active in businesses which, considered by themselves, were virtually unrelated.

6.2.2 Dominant Business

The Dominant Business category can be subdivided into Dominant-constrained and Dominant-linked categories, representing the same type of diversification pattern as the Related-constrained and Related-linked categories. The quantitative criteria for a company to be in the Dominant-Unrelated class were that its Specialization Ratio (SR) is at least equal to 0.70 (SR>=0.70) and that revenues received from activities unrelated to the largest group of related businesses be larger than revenues due to businesses related, but not including, the largest single business. The latter

requirement is equivalent to the inequality that the Related Ratio is less than the half of the sum of the Specialization Ratio and one (RR<1/2(SR+1)).

6.2.3 Vertical Integration

Vertically integrated firms possess 'long-linked technologies', as they often grow by absorbing their suppliers and industrial customers. As Rumelt points out, "the major activities of these companies consist of stages in the sequential processing of a particular material from its raw form to a finished product, or a variety of products". As to the U.S. firms in 1960s and 1970s, Rumelt found most vertically-integrated firms in the oil, rubber, basic metals, and forest products industries (Rumelt, 1974).

In principal, in the work of Wrigley and Rumelt, vertically integrated firms that had 95 percent or more of their sales in a single end-product business were classed as Single Business. Those in which the sales of all intermediate and end products associated with the vertical chain comprised less than 70 percent of total revenues were treated as either Related or Un-related Businesses, depending on the related ratio. The rest, which were the majority, were placed in another subclass of Dominant Business firms, the Dominant-Vertical class.

6.2.4 Conglomerates

A Conglomerate is a company that has rapidly diversified into several unrelated areas by means of a relatively large number of mergers and acquisitions (Rumelt, 1974).

The quantitative criteria to distinguish a firm as an unrelated business firm is that its Related Ratio is smaller than 0.70 (RR<0.70).

Although an acquisitive conglomerate is by definition an unrelated business firm, not all unrelated business firms are conglomerates. Rumelt has defined the following criteria for a firm to be a conglomerate: "(1) conglomerates have to have experienced an average growth rate in earnings per share of at least 10 percent per year; (2) conglomerates have to have made at least five acquisitions, three of which were diversification moves into new business areas unrelated to previous activities; and (3) conglomerates have to have issued new equity shares whose cumulative market value was greater than the cumulative value of dividends paid during the same period" (Rumelt, 1974).

6.2.5 Summary of Diversification Categories

Rumelt has defined four major categories of diversification strategy (Single Business, Related Business, Dominant Business and Unrelated Business). All but the Single Business category has been further divided into sub-categories. The heuristic used for assigning a firm to a category is indicated in the flow diagram outlined in Figure 6-2. Rumelt has described the definition and quantitative standard for the following different diversification categories[1] (Rumelt, 1974):

[1] Please note that the category description here is quoted from Rumelt (1974): 29-32.

(1) Single Business: firms that are basically committed to a single business. Single Business companies are those with specialization ratios of 0.95 or more.

(2) Dominant Business: firms that have diversified to some extent but still obtain the preponderance of their revenues from a single business. Among non-vertically integrated firms (VR<0.70), those with specialization ratios greater than or equal to 0.70 but less than 0.95 are Dominant Business firms. Among vertically integrated firms (VR>=0.70), those that do not qualify as Single Business companies fall into the Dominant category.

   (a) Dominant-Vertical: vertically integrated firms (VR>=0.7) that produce and sell a variety of end products, no one of which contributes more than 95 percent of total revenues;

   (b) Dominant-Constrained: non-vertical Dominant Business firms that have diversified by building on some particular strength, skills, or resource associated with the original dominant activity. In such firms the preponderance of the diversified activities are all related one to another and to the dominant business;

   (c) Dominant-Linked: non-vertical Dominant Business firms that have diversified by building on several different strengths, skills, or resources or by building on new strengths, skills, or resources as they are acquired. In such firms the preponderance of the diversified activities are not directly related to the dominant business but each is somehow related to some other of the firm's activities;

(d) Dominant-Unrelated: non-vertical Dominant Business firms in which the preponderance of the diversified activities are unrelated to the dominant businesses.

(3) Related Business: non-vertically integrated firms that are diversified, having specialization ratio less than 0.70, and in which diversification has been primarily accomplished by relating new activities to old, so that the related ratio is 0.70 or more.

(a) Related-Constrained: Related Business firms that have diversified chiefly by relating new businesses to a specific central skill or resource and in which, therefore, each business activity is related to almost all of the other business activities;

(b) Related-Linked: Related Business firms that have diversified by relating new businesses to some strength or skill already possessed, but not always the same strength or skill. By diversifying in several directions and exploiting new skills as they are acquired, such firms have become active in widely disparate businesses.

(4) Unrelated Business: non-vertical firms that have diversified chiefly without regard to relationships between new businesses and current activities. Such firms are defined by a related ratio of less than 0.70.

(a) Unrelated-Passive: Unrelated Business firms that do not qualify as Acquisitive Conglomerates;

(b) Acquisitive Conglomerates: Unrelated Business firms that have aggressive programs for the acquisition of new unrelated businesses.

6.3 Classification of China's Listed Companies

In our database, there were 1,186 companies listed on either the Shanghai or Shenzhen Stock Exchanges in 2002. I classified China's listed companies into diversification categories according to Rumelt's diversification criteria. To make the classification, I used data describing the revenue breakdowns for each of China's listed companies from 1991, when China's stock markets were initialized, to 2002, the most recent fiscal year for which I had the complete data. However, as I have very few during the early stages of China's stock markets (1991-1994), I will do most of the analyses on the basis of the data from 1995 to 2002. The data on revenue breakdowns provides information on revenue by SIC (standard industrial classification) code for each company. With the help of the business sectors' SIC codes, I am able to calculate a firm's specialization ratio, related ratio and vertical ratio in each year.

6.3.1 Specialization Ratio (SR)

The specialization ratio is the proportion of a firm's revenues that can be attributed to its largest single business in a given year.

I calculated the specialization ratio for a listed China company on the basis of its 4-digit SIC codes. I regarded business sectors with different 4-digit SIC codes as different single businesses. I identified the 4-digit SIC business that accounted for the

largest percentage of a firm's revenues. This proportion was a firm's specialization ratio. An example will be provided later in this chapter in section 6.4.1 to make the calculation procedure clear.

6.3.2 Related Ratio (RR)

The related ratio is the proportion of a firm's revenues attributable to its largest group of related businesses. As to the definition of 'related', I use the standard of SIC codes. I regarded two businesses as related if they shared the same 2-digit SIC codes. For all businesses in the same 2-digit SIC code I cumulated revenues to determine the proportion of a firm's revenues in related businesses. The 2-digit SIC code with the largest revenue is the proportion that is the related ratio. I will provide several examples later in section 6.4 for clarification.

6.3.3 Vertical Ratio (VR)

The Vertical Ratio (VR) in a given year is the proportion of the firm's revenues that arise from all by-products, intermediate products, and end products of a vertically integrated sequence of processing activities (Rumelt, 1974). I used the following method to calculate a firm's vertical ratio.

First, I inspected a firm's 2-digit SIC codes to identify if a firm had a manufacturing business (SIC: 20-39). Second, if a firm does not have any business in manufacturing, I classified it into the non-vertically integrated category; otherwise, I checked if the firm had business in the wholesale trade (50 and 51), mining (10, 12, 13, 14) and

agriculture (01-09) sectors. I then summarized the percentage of sales from the above industries to that of manufacturing industry and get the result of the vertical ratio.

To align a vertically related chain of activities I did an examination of the manufacturing chain upward to the supplier (such as agriculture and mining) and downward to the customer (such as wholesale). The details to define whether two businesses are vertically related are listed in Table 6-2. The Vertical Ratio (VR) is calculated from the vertical chain with the largest sales percentage.

Finally, after I calculated SR, RR and VR, I classified firms into one of the diversification groups following the heuristic outlined in Figure 6-2.

6.4 Examples of Implementation of Coding Procedure

In this section, I provide several examples to illustrate this classification process.

6.4.1 Example One: Shan Dong Dong-E E-Jiao CO., Ltd

First the first example, I use the company, Shan Dong Dong-E E-Jiao CO., Ltd. It is a listed company on Shenzhen Stock Exchange. Its revenue percentage breakdown in 2001 is provided in Table 6-3.

In this example, the Specialization Ratio can be obtained from the largest revenue proportion of a single business. In this case, the business 'plastic products' (SIC code

3089) accounts for the largest proportion (0.8460). Hence, the Specialization Ratio is 0.8460.

Next, I consider businesses with the same 2-digit SIC as related. I then sum the revenue proportions for businesses sharing the same 2-digit SIC code. The results are listed in Table 6-4. I can now compute the Related Ratio, as derived from the largest revenue proportion of a 2-digit business. Here it is 0.8460 from the businesses with SIC code 30.

The calculation of the Vertical Ratio requires me to first identify if a firm's business is in manufacturing, which is marked by 2-digit SIC codes in the range of 20 to 39. In this example, the company has businesses in SIC codes 30, 28 and 38; hence it is engaged in manufacturing. After summarizing the revenue percentages from the businesses mentioned above, I searched SIC codes to identify if there exists any vertical link between different business sectors, which requires me to search for the manufacturing SIC codes one by one according to the criteria of table 6-2. First, for the SIC code as 30; I will search for whether there are any businesses that fall into the category of SIC code 516. Next, for the SIC code of 28, I will search for businesses with the SIC code of 512. The same rationale guides the search for 508 as vertically related to 38.

In my search, I found that there are business sectors with the SIC code of 516, which is vertically related to 30, and 512 which is vertically related to 28. Hence I obtain

two Vertical Ratios for this company: the first is 0.8880 (0.8460 from 30 plus 0.0420 from 516) and the second is 0.1107 (0.0923 from 28 plus 0.0184 from 512). I take the larger one (0.8880) as this firm's Vertical Ratio. According to the approach explained in Figure 6-2, I classify this firm into the category of Dominant-Vertical. By calculating as mentioned above, I obtain the result in Table 6-5.

6.4.2 Example Two: Gezhouba CO., Ltd

The second example utilizes Gezhouba Co., Ltd, which is listed on the Shanghai Stock Exchange. The details of its revenue percentage breakdown in 1999 are listed in Table 6-6.

The firm's Specialization Ratio is 0.8382 (Table 6-6), as this is the largest revenue percentage of a single business – Heavy construction (SIC code: 1629).

After summing up the revenue percentages of business sectors with the same 2-digit SIC code, I obtain the detailed information in Table 6-7. From the table I find the Related Ratio as the largest revenue proportion of a business at the 2-digit SIC code level. It is 0.8382 from the business of Heavy Construction, Ex. Building (SIC code: 16).

Following the approach discussed above, I calculate the firm's Vertical Ratio. According to the standard described above, the company does not have any businesses in the manufacturing sector, so I judge its vertical ratio to be zero. The

sum of this firm's different ratios is listed in Table 6-5. And according to the rules shown in Figure 6-2, this firm is classified into the category of Dominant-Unrelated.

6.4.3 Example Three: XinJiang TianYe Stock CO., Ltd

The third example is constructed using a firm listed on the Shanghai Stock Exchange. XinJiang TianYe Stock Co., Ltd is company that has businesses in agriculture, construction and manufacturing. Its revenue breakdown in 1999 is detailed in Table 6-8.

First, following the methodology described earlier, I quote the largest revenue percentage of a single business as the Specialization Ratio of the company. That is 0.4757 from the business of agricultural chemicals (SIC code: 2879).

As to the Related Ratio, details of revenue breakdowns at the level of 2-digit SIC code are listed in Table 6-9. Clearly, I find that the Related Ratio from the largest revenue percentage as 0.5266, from the business of chemicals and allied products (SIC Code: 28).

Still using the same method, I come to the calculation of Vertical Ratio. As with the second example, I find no vertical related chain in all of this firm's business sectors. The Vertical Ratio is consequently zero, which is the same as in the second example. All the ratios for the three examples are provided in Table 6-5. According to the rules

shown in Figure 6-2, XinJiang TianYe Co., Ltd is classified into the category of conglomerate.

6.5 China and U.S. Firms: What's the Difference?

I now describe the results of my classification procedure. I do this with reference to three examples I quoted in section 6.4: Shan Dong Dong-E E-Jiao CO., Ltd, Gezhouba CO., Ltd and Xin Jiang Tian Ye CO., Ltd. Following the method I described above, I classify all the China's listed companies into different diversification categories and try to find out the strategy evolution of these listed firms.

6.5.1 Transition towards diversification of China's listed companies

I calculated the three diversification ratios for all of China's listed companies from 1991 to 2002 and report the results in table 6-11. However, I have limited information for China's listed companies from 1991 to 1994, thus I will analyze the diversification trend of China's listed companies from 1995 afterwards. From 1995 to 2002, the number of listed companies on both Shanghai and Shenzhen Stock Exchanges increased from 300 to 1,186. I classified all the firms listed in each year in this period into different categories according to Rumelt's rule. By looking at the trends over time for this classification procedure, I identified several interesting patterns in these companies' diversification transition paths. The numbers and percentages of different categorized firms are shown in Table 6-10 and Table 6-11.

To analyze the trend of China's listed companies toward diversification, I follow Rumelt to pick up three years (1995, 1998 and 2002) to further estimate those companies' pattern of change. The reason I select these three years is that I want to study the changing pattern of China's listed companies in three year blocks and compare it to what has happened to U.S. firms.

For this analysis, I first classify the strategic categories into four major classes: Single Business, Dominant Business (including Dominant Vertical, Dominant Unrelated and Dominant Linked), Related Business (Related Linked) and Unrelated Business (Conglomerates). The observed percentage of firms in each strategic category is listed in Table 6-12. The same information is portrayed graphically in Figure 6-3 and Figure 6-4. Both reveal a dramatic pattern of change. Between 1995 and 2002 the percentage of diversified corporations more than tripled; the percentage of firms following Related or Unrelated Business strategies of expansion rose from about 14 percent to about 71 percent in the twelve-year period. Clearly, there has been a basic change in the product-market scope of the listed companies in China in this period.

The most striking change in any individual group is the decline in the number of Single Business firms among all the China's listed companies. Comprising more than eighty percent of all the companies in 1995, those Single Business firms drop to less than thirty percent of the total. Equally noteworthy was the increase in listed companies that followed Unrelated Business strategies. In 1995 this group accounted

for only 14 percent of the total, but by 2002 more than two out of every three firms fell into the Unrelated Business category. Another important trend is the increase in the category of Dominant Business. The percentage of firms in this category has grown from zero in 1995 to about 34 percent in 2002. The behavior of sub-classes of the Dominant category shed some light on how this happened. Dominant Linked almost remained to be zero, contributing nothing to the increase. Most of the increase comes from the percentage increase in Dominant Unrelated, from 0 percent to around 30 percent. The importance of the Related Business category is just like that of Dominant Linked, always just above zero.

The basic pattern of change in the composition of China's listed companies between 1995 and 2002 was the increase in the Dominant and Unrelated Business categories at the expense of the Single Business category. But how did this and other redistributions come about? Did most of the Single Business firms of 1995 adopt strategies of diversification by 2002, or was the increase in Unrelated Business category caused by the entrance of newly listed companies?

To separate the effect of strategic change from that of newly listed companies' effects, I looked at those firms that were initially listed in 1995 and were kept listed through 1998 until 2002. Three hundred companies satisfied this condition, and the distributions by category for these firms are shown in Table 6-13. Clearly, there was a significant strategic change among these firms: 58 percent of these firms moved from one category to another between 1995 and 2002, and most of these moves were in the

direction of increased diversification. The changes made by the firms that were listed in 1995 resulted in strategic class populations very much like those of all the China's listed companies.

To make this point in more detail, I tracked all the listed A shares (listed in RMB) that had their IPOs in the years 1995, 1996, and 1997. I recorded the diversification category distribution of these firms in their IPO year and then again five years after they were first listed. For example, for the firms that were initially listed in 1995, I compare their diversification category between in 1995 and in 2000. The comparison is listed in table 6-14. From the table, I find a clear strategic change of China's listed firms who had an IPO sometime in the 1995 to 1997 period. For these firms, the percentage of Single Business firms has decreased more or less during a five year period. The largest decrease is for firms initially listed in 1997 (45.93% from 1997 to 2002). In the meanwhile, the percentage of Conglomerate firms has increased to a certain extent. Another trend is the increase of Dominant Unrelated firms. During every five-year period, the group of Dominant Unrelated firms is expanding. This expansion reaches a peak in the 1996 to 2001 period (an increase of 22.77 percent). This shows a trend that firms are moving from the category of Single Business to the categories of Conglomerates and Dominant Unrelated.

Table 6-12 also shows the possibility that there exists a high degree of stability in each five year period in the pattern of transitions among the diversification categories. Using the transition rate for 1995-1998, I projected the category distribution in 2002

and compare the projected percentage with that of the actual one in Table 6-15. The projected percentages comprise the supposed distribution if from 1998 to 2002 the number of firms in each category increased or decreased at the same rate as that of those in 1995 to 1998. Compared to the figure is the actual distribution across all the categories I observed in 2002.

The results of this procedure are interesting. Except for Dominant Unrelated, Dominant Linked and Related Linked, the other categories' percentages are either magnified or lessened. The vital reason behind this is that China's listed firms have been moving toward a diversification strategy at a much faster pace during 1998-2002 period than during 1995-1998 period. Hence, I find a declining percentage of Single Businesses and a rising rate of Conglomerate formation in the latter time period.

6.5.2 Comparison between China and U.S. firms

Rumelt did his classification study on the basis of randomly selected firms out of a group of companies. The group was taken to be the 500 largest United States industrial companies, as listed annually by Fortune magazine. The 1969 sample was constructed by taking the 100 firms that Wrigley had selected randomly from the 1967 Fortune 500, deleting those which were no longer among the largest 500 in 1969 and randomly selecting firms from the 1969 group to take their places.

Rumelt estimated the percentages of 500 largest industrial corporations that fell within the four major and six minor categories of diversification strategy, shown in

Table 6-16. I compare Rumelt's results with those for China's listed companies and find that several trends are immediately apparent.

The biggest similarity between China's companies and U.S. firms is that they both show a transition toward diversification. The most striking trend in U.S. firms' strategic category evolution is the decline of Single Business (from 35 percent in 1949 to 6 percent in 1969) and the increase of Unrelated Business (from 3 percent in 1949 to 20 percent in 1969). This trend in isolation is similar to that of China's listed companies. However, when looking at the trends in the Dominant Business and Related Business categories, I have found distinct differences between the two. As to the Dominant Business category, China's listed companies have shown an extraordinary growth rate (from 3.33 percent in 1995 to 34.38 percent in 2002). However, for the U.S. firms, the relative importance of the Dominant Business category, as a whole, decreased slightly during the twenty-year period of Rumelt's study. It appeared to have grown between 1949 and 1959, but then it diminished by more than this amount in the second decade.

By looking at what had happened in the sub-class of the Dominant category, I find that the Dominant Vertical group was extremely stable, and the Dominant Linked group, on the other hand, became much smaller between 1959 and 1969 (dropping from 20 percent to 12 percent), which is the chief reason for the overall drop in the size of Dominant Business category. But as for China's listed companies, I find that all the increases are in the sub-class of the Dominant Unrelated category.

Another major difference between the U.S. and China samples is found in the category of Related Business. In contrast to U.S. firms, exceptionally small amounts of firms seem to fall into this category out of China's listed companies. In U.S. firms, the Related Business category became increasingly important between 1949 and 1969, almost doubling in size. All the increase in the Related category was in the Related Linked subclass, which tripled in size between 1949 and 1969, increasing from 7.9 percent to 23.6 percent.

Rumelt projected the 1969 percentages using the 1949-1959 transition rates. Rumelt's result of the projected and actual percentages is listed in Table 6-17. It shows a surprising degree of stability between decades in the pattern of transitions among the minor categories. The difference between these two distributions is purely due to the difference between the 1949-1959 and 1959-1969 patterns of strategic change. Except for the category of Dominant Unrelated, all the projected percentages are fairly close to the actual observed rate. This is even more striking if I compare these results to what I obtained from a similar analysis on China's listed companies.

The data of China's listed companies and U.S. firms indicate that management in a considerable number of firms saw the opportunity or felt the need to diversify. However, when coming to the issue of how firms diversify, China's firms and U.S. firms give me two different faces. As to the U.S. firms from 1949 to 1969, it is obvious that most of the firms that moved from Single Business to Related or

Unrelated Business strategies passed through the Dominant category at some point (Table 6-16). It is worth noting how these firms behave after they move from Single Business into Dominant Business. During the two decades (1949-1969), it does appear that firms that went from the Single to the Dominant categories in the first decade were no more likely, and perhaps even less likely, to move on to the Related category in the next decade than firms that were Dominant in both 1949 and 1959. As the managers of many Dominant Business companies seem either unwilling or unable to undertake further diversification, this category cannot be simply viewed as consisting of companies that are on their way to full diversification. In fact, most of the Single Business diversifiers during both decades entered only businesses that were closely related to ongoing activities.

As to China's listed companies, the analysis in this chapter shows that they rapidly and directly evolve towards full diversification. For those firms who moved away from a Single Business, half of the firms went to the category of Dominant Business and the other half went directly to the category of Unrelated Business, without a stop at the mid-point of the Dominant or Related Business categories. Even those who move into the Dominant category mostly choose the Dominant Unrelated category.

It is also worth noting that while many China companies choose to diversify; another group of firms choose to remain in a single business. These single business firms came to form the biggest group of all the different categories. It is striking when this

figure is compared with the percentage that U.S. single business firms have occupied: 28.41 percent in China and 6.2 percent in U.S. (Table 6-12 and Table 6-16).

It seems that China companies either do not diversify or diversify into many un-related business sectors, while U.S. firms are more inclined to diversify into related industries as a first step toward full diversification. The diversification pace of China's listed companies also shows a different pattern. Managers of these companies seem more active and prone to diversify into unrelated business activities compared to their U.S. peers.

6.6 Summary

In this chapter I described the classification scheme initiated by Rumelt in 1974. I used this classification scheme to examine the diversification status of China's listed companies from 1995 to 2002. I began this chapter by detailing Rumelt's classification scheme of diversification measures and diversification categories. The procedure used in classifying firms mixed quantitative measures and qualitative assessments. As Rumelt (1974) pointed out, "the most crucial of the classification procedure was the decision as to what constitutes a firm's largest discrete business and the evaluation of the nature of the interrelationships among a firm's businesses".

Then I present and analyze the census data on the composition of China's listed companies from 1995 to 2002. Following Rumelt's methodology, I calculated the

diversification measures of all the listed companies and each company into a diversification category. To clarify the details of the procedure I provided three examples. I then selected three years (1995, 1998 and 2002) to explore the changing pattern of firms' diversification strategy. I observed a clear trend for China's listed companies to move toward full diversification.

To separate the effect of strategic change from that of newly listed companies, I look at those firms that were initially listed in 1995 and compare the distribution of diversification categories of these firms in 1995, 1998 and 2002. Additionally, I tracked after all the listed A share companies (listed in RMB) that have their IPO during 1995-1997 and compare the distribution of diversification category five years after IPO to the distribution of IPO year. Both studies find that the group of Single Business firms is shrinking while the categories of Dominant Unrelated and Conglomerate are gaining their percentage share.

Then I compared the diversification trend of China's listed companies with that of U.S. firms. I found that the firms in the two contexts show very different diversification evolution patters. China's companies either do not diversify or the companies diversify into many un-related business sectors. Meanwhile, U.S. firms are more inclined to diversify into related industries as a first step toward full diversification. Managers of China's companies are more active and prone to diversify into unrelated business activities compared to their U.S. peers.

Based on these analyses, I see the following questions as being among the most interesting to examine in the product diversification developments of China's companies:

(1) The evolutionary trend of China's listed firms' diversification strategy—it is interesting to explore how China's listed firms evolve and transform from one diversification category to another, according to Rumelt's classification;

(2) The reasons behind the evolutionary trend—what are the motives for these firms to diversify and why do they diversify in such a pattern as observed? Can I identify the factors that influence a firm's strategy of diversification, such as institutional change, ownership structure, and so forth?

(3) The implication of these trends for firm performance—what effect will a firm's diversification strategy have on firm's performance? Will a particular diversification strategy enhance firm's value or not?

(4) Does context matter—compared to developed countries, China is under a transition stage and its firms may behave differently from those in U.S. or Japan. Using Rumelt's classification which was built based on U.S. firms, I have found a different diversification trend of China's firms, which might have different implications for these firms' performance.

(5) The future of China's listed firms—will these firms next evolve in a similar pattern as U.S. firms? Will they continue with the observed trend to diversify more or follow the pattern of companies in developed countries to focus more?

I will examine points two, three and four in the remaining chapters in this thesis.

CHAPTER 7

RESULTS

In this chapter I describe the empirical results for my hypotheses tests. In chapter five, I described the models that would be used to test each hypothesis, from hypothesis one to hypothesis seven. In this section I describe the results in the sequence of the hypotheses and analyze the relationships between empirical results and the hypotheses, one-by-one. I use two major estimation algorithms: General Least Square regression and ANOVA to compare the means.

7.1 Summary of Key Results

To test the different hypotheses, I have used different econometric models. As I have discussed in chapter four, hypothesis one through three predict the relationship between ownership structure and firm diversification. Hypotheses four through six explore the relationship between diversification and firm performance, as contingent on a firm's ownership structure. Hypothesis seven compares the different diversified firm's performance using Rumelt's scheme.

Table 7-1 summarizes the results for the hypotheses tests. Overall, I find strong empirical support for two of the nine hypotheses (H1 and H2) and partial support for three other hypotheses (H4 H7a and H7b). Four of the hypotheses are not supported

(H3, H5, H6a and H6b). I will discuss the details of the empirical results for each hypothesis in the next section.

7.2 Hypotheses Tests Results

I have multiple measures of ownership concentration such as the shareholding of the largest shareholder, the shareholding of the five largest shareholders, the shareholding of the ten largest shareholders and the herfindahl of five largest shareholders. As to a firm's diversification level, I have multiple measures such as the herfindahl measure calculated at two, three and four digit SIC code levels, the entropy measure calculated at two, three and four digit SIC code levels and the concentric ratio. In addition I measure firm's performance by ROA and Tobin's Q.

In the empirical tests, I ran regression for each possible combination of these measures, varying at different measures of firm ownership concentration, diversification level or firm performance. Across these numerous models, I did not obtain qualitatively different results from what I report below. Part of the reason for this rests in the data reported in Table 5-6: the correlation between some of the measures, such as TOP5 and TOP10 (0.999), TOP1 and TOP10 (0.948), is very high. As the results are similar, I will concentrate on reporting those for specifications in which diversification is defined by 4-digit herfindahl (HERF_4), ownership concentration is defined by the summary of the largest five shareholders' shareholdings (TOP5) and performance is measured by ROA and Tobin's Q.

7.2.1 Hypothesis One

In the first hypothesis, I predict a negative relationship between a firm's ownership concentration and its diversification level. Table 7-2 reports the results of both random and fixed effect GLS econometric models in the test of this hypothesis. I use the 4-digit herfindahl measure as the dependent variable to measure a firm's diversification level. As to firm's ownership concentration, I use the measure defined as the shareholdings of the five largest shareholders (TOP5). In subsequent hypothesis tests, I will report results in the same pattern as I do for hypothesis 1.

In Table 7-2, I find that the relationship between ownership concentration and diversification is consistent with what was predicted in hypothesis 1. Firm ownership concentration is negatively correlated with a firm's diversification level in both random and fixed effect model. It is worth noting that in all the other models that are not shown in Table 7-2, where I use TOP1, TOP10 and HERF_5 as independent variables respectively, I obtained a similar negative and significant relationship. In addition, I repeated the test using two and three digit herfindahl as dependent variables. The results remained the same. When I use two, three and four digit entropy as the dependent variable, the results are very similar to what I have found using herfindahl as the dependent variable. I will discuss this result in detail in the next chapter. For now, I can conclude that Hypothesis 1 is fully supported.

7.2.2 Hypothesis Two

In chapter four I outlined hypothesis 2 which predicted a negative relationship between state ownership and firm's diversification level. Table 7-3 records the empirical results of the econometric model that is designed to test hypothesis two. In Table 7-3, I display the results for random and fixed effect models.

As shown in Table 7-3, the results accorded with the predictions of hypothesis 2. In the situation where I did not include the square term of state shareholding, I obtained a negative coefficient in both random and fixed effect models (Table 7-3). This indicates that the level of state shareholding is negatively related to firm's diversification level. I will discuss this finding in more detail in chapter 8.

When I added the square term into the equation, I obtained non-significant coefficients. I obtained the similar result when using entropy as the diversification measure, which is not shown in the tables. Overall, the state ownership is negatively correlated with a firm's diversification, and this relationship appears to be linear, not curvi-linear. Thus, hypothesis 2 is fully supported.

7.2.3 Hypothesis Three

In chapter four, for hypothesis 3, I predicted a U-shape relationship between legal person shareholding and firm diversification. I contended that legal person shareholding will be first negatively and then positively correlated with firm diversification. I follow a similar method as for hypothesis 2, to test this hypothesis. As reported in Table 7-4, I find that legal person shareholding is positively related to

firm diversification in random effect model (Table 7-4). But I did not find a significant coefficient for the fixed effect model.

Next, I added a quadratic term into the equation. I did not find an expected non-monotonic relationship between legal person shareholding and firm diversification. Instead, I found a significantly positive coefficient for the square term of legal person in fixed effect model.

For the non-linear model, I wanted to check if the addition of the new variable (the quadratic term) added additional explanatory power to the model. I did the F-test between the linear and non-linear models to test whether the difference of R-square between linear and non-linear models are significant. For the random effect models, the R-square excluding the square term of LEGAL is 0.878 while the R-square including the square term of LEGAL is 0.882. Therefore the F-statistic is 0.5 (insignificant at 0.01 level). Following the same calculations, the F-statistic for the difference between the fixed effect linear and non-linear models is 0.8 (insignificant at 0.01 level). Therefore, the R-square does not increase significantly. This result shows that the addition of the quadratic term does not improve the fit of the model with the data, which means that any sign and significance changes in the coefficient estimates are trivial and there is no value in adding the square terms. Therefore, the best and correct model is the linear model.

For the linear model in the random effect, I find a positive

relationship between legal person and firm diversification (Figure 7-1). Thus, hypothesis 3 is not supported.

7.2.4 Hypothesis Four

In chapter four, for hypothesis 4, I predicted an inverted U-shape relationship between a firm's diversification level and its performance. I contended that a firm's diversification will first be positively and then be negatively correlated with a firm's performance. Table 7-5 and Table 7-6 present the results for the 1991-2002 sample of these tests of hypothesis four. I used two different measures of firm's performance: ROA (Return on assets) and Tobin's Q to report the results.

To account for the possibility of non-monotonic relationship, I included both linear and quadratic terms of diversification measures. From Table 7-5 I find that there is a significant and positive linear relationship between firm diversification and firm performance, when firm performance is measured by Q. However, I did not find any quadratic relationship between the two variables. In Table 7-6, when I measure firm's performance using ROA, the results are similar to those in Table 7-5: I find a significant positive relationship between firm diversification and firm performance, but no quadratic relationship.

Overall, I did not find a quadratic relationship between diversification and firm performance as expected in hypothesis 4. Rather, I found that diversification has a positive relationship with firm performance when I use either market based or

financial performance measures. Thus hypothesis four is partially supported. I will discuss this finding in detail in the next chapter in my thesis.

7.2.5 Hypothesis Five

In the chapter 4, for hypothesis 5, I contended that firm's ownership concentration would make the inverted-U shape relationship between firm diversification and firm performance steeper. To test this hypothesis, I use an interaction term created as the product of the diversification measure and concentration measure to see whether there exists any concentration effect on the relationship between diversification and firm performance. I introduced two cross product terms: the product of the five largest shareholdings and diversification (TOP5*HERF_4), and the product of the five largest shareholdings and the square term of firm diversification (TOP5*HERF_4^2).

Table 7-7 and Table 7-8 present the results for the two models. The two models show results for the two different firm performance measures: Tobin's Q and ROA, for the 1991-2002 period. When Tobin's Q is used as the measure of firm performance, first of all I found a negative correlation between ownership concentration and firm performance, which indicates that the more concentrated a firm's ownership, the worse its market performance.

Next, for the equations that exclude the square term of firm diversification (column 2 and column 3 in Table 7-7), I did not find any significant signs for the interaction term of ownership concentration and firm diversification. However, I found a

significant and positive correlation between firm diversification and firm performance (Tobin's Q) for both random and fixed effect models.

When I added the square term into the equations, for both the random and fixed effect models, I again did not find any significant curvilinear relationship between the interaction term of firm diversification and firm performance (column 4 and column 5). Thus, hypothesis 5 is not supported when I use Tobin's Q as a measure of firm performance.

When I use ROA as the measure of firm performance, I found a positive linear correlation between diversification and firm performance, but did not find any curvilinear relationship (Table 7-8). Secondly, I did not find any significant sign for the interaction term of ownership concentration and firm diversification. Therefore, hypothesis 5 is not supported.

7.2.6 Hypothesis Six

In chapter four I have made two predictions about hypothesis six. First, I contended that State shareholding would make firm diversification have a greater negative impact on firm performance as diversification increases. In contrast to this effect, I predicted that Legal Person shareholding would make firm diversification have a greater positive impact on firm performance as diversification increases.

The results of these tests are presented in Table 7-9 to Table 7-12. For the effect of state shareholding, I use Tobin's Q as the performance measure in Table 7-9 and ROA in Table 7-10. In Table 7-9, as to the interaction term of state shareholding and diversification, I did not find any significant sign to the coefficients. In addition, I also did not find the interaction term of state ownership and the square term of diversification to be significant.

When I use ROA as the performance measure, I find a significant and positive linear relationship between firm diversification and financial performance (Table 7-10, column 2 and column 3). However, the coefficient estimates on the interaction terms are not significant. This result shows that state ownership does not show its influence as much on the relationship between firm diversification and accounting performance. Thus, hypothesis 6a is not supported when firm performance is measured by Tobin's Q or ROA.

As to the role of legal person shareholding on firm diversification and firm performance, I present the empirical results in Table 7-11 and Table 7-12. When I measure firm performance using Tobin's Q (Table 7-11), I find an inverted U-shape relationship between firm diversification and firm performance (column 5 and column 6) in both random and fixed effects model. From the table I find that firm diversification first exerts a positive and then a negative impact on firm performance as it keeps increasing.

In addition, I found legal person shareholding to moderate these relationships. In both fixed and random effects model (column 5 and column 6), firm diversification is firstly positively correlated with firm performance, and legal person lessens this positive effect (the significantly negative effect of the interaction term of legal person and diversification). As shown in Figure 7-2, as a firm's diversification increases, high levels of diversification are negatively linked to firm performance. At the same time, the greater the legal person ownership, the weaker the negative effect (as indicated by the significant positive sign of the interaction term of legal person and the square term of diversification).

Thus, I find that legal person did not enhance the positive correlation between firm diversification and firm performance. Rather, legal person shareholding moderates the impact of firm diversification on firm performance, which means that it lessens the negative effect and reduces the positive effect between firm diversification and firm performance.

Although I obtained these findings for the Tobin's Q model, when I use ROA as the performance measure (Table 7-12), I did not find the interaction term to be significant, nor did I find any quadratic relationship between legal person shareholding and firm performance. Thus, I did not obtain support for hypothesis 6b.

7.2.7 Hypothesis Seven

In chapter four, I made two predictions in hypothesis 7 in which I switched the focus of the measure of firm diversification from a continuous herfindahl or entropy measure to the Rumelt categorizations.

In hypothesis seven, I contended that for the listed firms controlled by state shareholdings, Single Business firms would show the best performance while Unrelated Business firms would show the worst performance. I regard those firms whose largest shareholding is state ownership as being controlled by the government. I present the empirical results for this hypothesis test in Table 7-13.

In the results shown in Table 7-13, I documented the empirical results for the 1991-2002 periods. For the firms controlled by the state shareholding, I find that the category that shows the highest ROA is Single Business, with the highest average ROA as 0.0409 (Table 7-13). Additionally, the category that shows the worst firm performance in ROA is Dominant Vertical, with the average ROA as 0.0142. As can be seen in the table, the significant differences are found between Single Business and Dominant Unrelated and between Single Business and Conglomerate.

If I measure firm performance with Tobin's Q, the results are almost the same. The category with the highest Q are Conglomerates and Single Business (2.5667 and 2.5266 in Table 7-13 separately) and the lowest is Dominant Unrelated (2.2042 in Table 7-13). In addition, I find that the mean Q of Dominant Unrelated is significantly different from both the mean Q of Single Business and the mean Q of

Conglomerate at 0.1 significance level. Thus, I find that both Single Business firms and Conglomerates show better performance than Dominant Unrelated companies. This finding shows a U-shape relationship between firm diversification and firm performance. Therefore, I conclude to have found partial support for hypothesis 7a.

As to the firms controlled by legal person shareholding, I predicted that Related firms would show the best performance while Single Business firms would show the worst performance. I document the empirical results in Table 7-13. Again this time, I find the category of Single Business to show the best performance in ROA (0.0424 in Table 7-13), followed by Conglomerates (0.0338 in Table 7-13). In addition, Dominant Unrelated firms show the very low firm performance (0.0194). Statistically, I found that the mean of ROA for Dominant Unrelated is significantly lower than that of Single Business (Table 7-13).

When I measure firm performance using Tobin's Q, the results are a bit different. I find Conglomerate firms show the best performance (2.9973 in Table 7-13) and Dominant Unrelated firms show the worst performance (2.8065 in Table 7-13). In addition, the difference between these two categories is significant at the 0.1 significance level. Therefore, by combining the results for ROA and Q, I can conclude that Dominant Unrelated firms show the worst performance while Single Business firms and Conglomerates show the best performance. Thus, I find partial support for hypothesis 7b.

7.2.8 Control Variables

As the logarithm of firm assets and logarithm of firm sales are highly correlated (0.780 at Table 5-6), I used them separately as proxies for firm size in the empirical tests. As I obtained similar results when I use each of them, I only reported the coefficients of LOGSALES (the logarithm of sales) in the tables. Throughout the empirical tests, I find that LOGSALE is positively related to firm diversification. In addition, LOGSALE is negatively related to Tobin's Q. This finding is not consistent with Fama and French (1995)'s finding that firm size is positively related to market performance. In addition, I find that LOGSALE is positively related to ROA, which shows that a larger size of a firm is associated with its financial performance.

It is worth noting that in the models the liquidity and IPO age generally have a consistently significant influence on firm performance. As the ratio of debt to equity is too large to show the proper coefficients, I divide the ratio by 1000. The ratio of debt to equity is found to be negatively correlated with ROA but not with Tobin's Q, which shows that the higher ratio of debt, the worse financial performance. IPO age is negatively related to ROA and Tobin's Q, showing that the longer listed firms have worse performance than firms with a shorter history of being listed in general. The industry, year and province dummies all show their significance in the regression. As it is not the central topic of my thesis and the space for the tables is limited, I did not report the coefficient and p-value of provinces and industries.

7.3 Summary

In this chapter I discussed the empirical results of the econometric models devised to test every hypothesis that are proposed in chapter four. Overall, I find strong empirical support for two of the nine hypotheses (H1 and H2) and partial support for three other hypotheses (H4 H7a and H7b). Four of the hypotheses are not supported (H3, H5, H6a and H6b). I summarize all the empirical results according to each hypothesis in Table 7-1.

In all, I find that ownership concentration is negatively correlated with firm diversification, which means that the more concentrated a firm's ownership is, the lower the level of its diversification. I find state shareholding to be negatively related to firm diversification, while legal person shareholding exerts a positive impact on firm diversification. In addition, I find a positive and linear relationship between firm diversification and firm performance, but no curvilinear relationships (when firm performance is measured by ROA). Additionally, I did not find any curvilinear relationship between firm diversification and firm performance on the contingency of ownership concentration as well as state ownership. However, it turns out to involve a complicated inverted U-shape when I take the contingency effect legal person shareholding into consideration (Figure 7-2).

My hypotheses concerning the relationship between ownership concentration and firm diversification, and the relationship between state ownership and firm diversification received full support. However, the contingent relationship between

ownership concentration, ownership identity and firm performance are not consistent with my predictions in the hypotheses. I will discuss the meanings and implications of these findings in the next chapter, in which I draw my conclusions for this study.

CHAPTER 8

CONCLUSION

My thesis has examined the diversification and performance patterns of China's listed companies. To do this, I incorporated research on corporate governance, diversification strategy and ownership structure in this study which is situated in the environment of a transition economy: China.

In this study, I first investigate the incentives for China's listed companies to diversify and the impact of diversification on firms' performance. Second, I explore the relationship between ownership structure (ownership concentration and ownership identity) and firm diversification. Third, I link ownership structure, firm diversification and firm performance together and study the contingent effect of ownership structure on the relationship between firm diversification and firm performance. Finally, I develop an analysis of China's listed firms' diversification strategies that is consistent with Rumelt's diversification classification. I compare the diversification trend of China's listed companies to those of the United States and find a different behavior pattern and performance implications for China's firms.

My study has four major areas of findings. The first area is about the relationship between ownership structure and firm diversification. I find that ownership concentration is negatively related to firm diversification. In addition, I find that state shareholding is also negatively related to firm diversification. Second, I find a

positive relationship between China's firms' diversification and performance, which is against the conventional wisdom as derived from the examination of firms in Western countries, such as the U.S. and U.K. (Servaes, 1996). The third area of my findings is about the contingent effect of ownership structure on the relationship between firm diversification and firm performance. I find that China's listed firms' ownership concentration has a positive impact on the relationship between firm diversification and firm performance when firm performance is measured by ROA (Table 7-8). Additionally, I find that legal person sharing moderates the relationship between firm diversification and firm performance (Figure 7-2). This finding is important as it reveals the roles that legal person shareholding plays in influencing firm strategy and thus performance. Here the moderating effect means that Legal Person Shareholding makes the slope of the inverted U-shape curve between firm diversification and firm performance more flat. Finally, I did not find significant performance differences between firms in all the various diversification categories based on Rumelt's scheme. I did, however, find that Single Business and Conglomerate firms to show better performance than Dominant Unrelated firms, which suggests a U-shape curve for the relationship between firm diversification and firm performance. In addition, I find a general trend towards a higher level of firm diversification for all of China's listed companies in the decade after the two stock markets were established.

In this chapter, I will discuss the above findings in more detail and raise the implications of this study and further research directions.

8.1 Ownership Concentration

8.1.1 Ownership Concentration and Firm Diversification

In this study, I find that for China's listed companies, ownership concentration is negatively correlated with firm diversification, which means that the more concentrated a firm's ownership structure, the lower level of its diversification. This finding is consistent with Hoskisson and Turk's (1990) finding that firms with distributed ownership are susceptible to be associated with excessive diversification. In China, this situation seems to hold that the block holders are more efficient in dealing with the free-rider problem that is associated with the lack of monitor on firm management and thus the prevalence of overly high diversification levels. For this issue, I find a consistency and similarity between China's firms and those of Western countries.

8.1.2 Ownership Concentration on Firm Diversification and Performance

I did not find the ownership concentration to enhance the slope of the inverted U-shape curve between firm diversification and firm performance as I predicted in Hypothesis 5. However, I find that ownership concentration has a positive impact on the relationship between firm diversification and firm performance when firm performance is measured by ROA (Table 7-8: random and fixed effect). This finding means that as a firms' ownership concentration keeps increasing, the marginal benefit of diversification will increase accordingly. This finding is consistent with the

conventional wisdom that the management has a higher potential to expropriate when ownership concentration is distributed (Morck et al., 1988). In addition, this finding may partly support the argument of a steeper inverted U-shape curve in the left half where firm diversification is positively related to firm performance. I see the potential here to explore the role of firm ownership concentration on the interactive relationship between firm diversification and firm performance in future work.

8.2 State Ownership

8.2.1 State Ownership and Firm Diversification

I find that state shareholding is negatively correlated with firm diversification, which is consistent with my prediction in the hypothesis. According to the literature and conventional wisdom, state ownership is demonstrated to be ineffective in monitoring a firm's management in China (Xu & Wang, 1997). The finding in my study suggests that state shareholding has complex impact on a firm's diversification and performance as well. Directly, state shareholding is negatively related to firm diversification (Table 5-6). In addition, state shareholding has its most weighted control in the largest SOEs of China such as China Telecom, China National Petroleum Corporation and Sinopec Corporation. All these large SOEs are not diversified according to my diversification calculation standard and operate as a monopolist or oligopolist in their major businesses. This fact might explain part of the reason behind the negative relationship of state shareholding and firm diversification.

8.3 Legal Person

8.3.1 Legal Person Shareholding and Firm Diversification

In the empirical part I find that legal person shareholding has a positive impact on firm diversification, which means that a firm's diversification level increases as the shareholding of legal person in the firm increases. This finding is important in that it reveals an influence that Legal Person shareholding is exerting on firm performance. In summary, my empirical findings suggest that legal person shareholding of China's listed companies have played a complicated role in influencing firm performance. On the one hand, as the literature has already shown, legal person shareholders exert a monitoring effect and successfully lead the firm towards better performance when they hold significant stake in the firms (Xu & Wang, 1997). On the other hand, however, the controlling power of legal person shareholding also leads the firm to excess diversification that deteriorates firm's profitability (Table 7-4). These results are consistent with the idea that legal person shareholders can perform an effective monitoring role when it has substantial power in a firm's decision making, as given by high levels of equity ownership.

8.3.2 Legal Person on Firm Diversification and Firm Performance

As to the contingent effect of legal person on the correlation between firm diversification and firm performance, I find that legal person shareholding has a moderating role on the above relationship. It means that legal person shareholding would lessen the positive impact, and reduce the negative impact of firm

diversification on firm performance. In other words, when I find a positive relationship between firm diversification and firm performance, legal person would lessen this positive relationship when I consider its effect on firm's diversification and combine legal person with firm diversification and firm performance. Similarly, when I find a negative relationship between firm diversification and firm performance, legal person shareholding would reduce this negative effect when I consider its impact on firm diversification and add this effect into the relationship between firm diversification and firm performance.

In fact, compared to the already extensive research on state shareholding of China's listed companies (Xu and Wang, 1997; Hovey et al., 2003), the research on legal person shareholding has received limited attentions. My empirical findings show that on the one hand, legal person shareholding shows its positive effect when it controls the deteriorating impact of firm diversification on firm performance. On the other hand, the controlling power of legal person shareholding also leads the shareholder to expropriate minority shareholders and results in a worsening of a firm's profitability. Thus, legal person shareholders can bring both costs and benefits to a firm's management that varies at different levels of legal person's control in a firm.

8.4 Rumelt's Classification

In my study I classified China's listed companies into six different categories according to their different diversification strategies based on Rumelt's scheme

(Rumelt, 1974). In my comparison of the performance of China's listed companies, I did not find significant difference for both Tobin's Q and ROA between all of these different categories. However, I did find that Single Business and Conglomerate firms had a better performance than Dominant Unrelated firms, which suggests a U-shape curve for the relationship between firm diversification and firm performance. In addition, I observed a clear trend for China's listed companies to move toward full diversification. After I compare the diversification trend of China's listed firms to that of the U.S. firms, I found that the firms in the two contexts show very different diversification evolution patterns. China's companies either do not diversify or the companies diversify into many unrelated business sectors. Meanwhile, U.S. firms are more inclined to diversify into related industries as a first step toward full diversification. Managers of China's companies hence are more active and prone to diversify into unrelated business activities compared to their U.S. peers.

These findings are very important as they lead to the implication that China's firms are possibly in an abnormal transition stage towards rapid diversification, in which they escape the necessary steps and thus they might not have sufficient resources to support an overly-high level of diversification.

According to Markides (1992), a firm's control costs and coordination costs rise accordingly as a firm continues to diversify. In addition, China's firms might lack sufficient capital, management skill and knowledge to maintain an excessive level diversification. All these factors make me expect a negative relationship between firm

diversification and firm performance for China's firms. However, empirically I find that firm diversification and firm performance are positively related and that conglomerates show at least as good performance as Single Business firms. One possible explanation for this result exists in the high transaction costs in China. It is possible that a firm could avoid this high cost through diversifying, and the more a firm diversifies, the greater the advantages and benefits it could reap from this strategy.

Another explanation rests in the way I identified the ownership identities. In my study, I followed the approach of previous scholars to divide a firm's shareholder into state shareholding and legal person shareholding. In testing Hypothesis seven, I separated the firms into those controlled by state shareholding and others controlled by legal person. I defined the firms whose largest shareholder is a state shareholder as state controlled and the firms whose largest shareholder is a legal person shareholder as controlled by legal person. As I mentioned earlier, it is a bit simple and unsatisfactory to differentiate shareholding into state and legal because legal person shareholding is such a complex identity that some of the legal person shareholders are very similar to the state, while others are more close to institutional shareholdings or private shareholders. It might also be too simple to regard a firm's largest shareholder as the controlling one without considering its weight in the outstanding shareholdings. My finding here suggests a future research direction to re-classify the different shareholding of a Chinese firm based on more clear definitions. In addition, scholars

might also consider dividing all the firms into different categories based on the new classification standard.

8.5 Implications and Further Development

My study has identified several key associations between ownership structure, diversification strategy and firm performance. The study provides empirical evidence to support lines of research on China's companies' shareholding as well as their diversification strategies. The findings of state and legal person shareholding not only improve the understanding of the difference between legal person and state shareholding, but also provides new insights to the gradual evolution of China's institutions towards market-oriented and privatization.

My findings can contribute to developments in agency theory and institutional theory. Agency theory was developed to deal with the traditional agency problems between the principal (shareholders) and the agent (managers). Scholars have extended basic concepts in agency theory by studying the identities of principals and agents, such as in looking at the role of state shareholders in the context of emerging economies to explore the lack of incentive of state ownership to monitor the management (Xu and Wang, 1997). I enrich the use of agency theory by exploring the impact of state shareholding and legal person shareholding on a firm's management, diversification strategy and its performance. This enrichment comes from a further expansion of the identity issue to provide a finer-grained analysis of the principal-agent relationship, in

which I conceptualize and test differences in the preferences and motivations of principals, as influencing the activities and strategies that agents pursue in publicly-owned corporations.

The study of the inborn advantages and limitations of different ownership identities helps us to understand how this institutionally created form of ownership has influenced the institutional transition process in China. Moreover, my study contributes to institutional theory in that I explore the relationship between diversification strategy and firm performance, and the trend of China's firms' diversification evolution. This evolution pattern might offer a unique perspective to study the institutional influence on the behavior and response of market players, especially in a way different from that of the Western countries. I help develop an institutional economics approach to explain how a firm might evolve in its diversification strategy and in what direction it evolves towards in a large transition economy: China. One reason that China's firms would choose different diversification strategies and grow in a different pattern than that of U.S. firms would lie in the different institutional environments that China's firms are facing, along such dimensions such as formal institutions like legal and tax environments, and informal institutions like culture and tradition. From the perspective of a diversification strategy, I compare the responses of China's firms, as I find, with the reported findings of U.S. firms. I attribute some of the difference to environmental differences between the U.S. and China, and provide evidence that is consistent with an

institutional explanation on the behavioral and strategies disparities between firms of emerging economies and developed countries.

My study has its limitations. First of all, a research opportunity lies in the role of legal person shareholding. As I mentioned these in the previous paragraphs, that scholars are not very clear about the essence and core of legal person, and these is confusion on its definition as this is a unique shareholding that has yet to appear in the West. To better understand the influence of legal person shareholders, it will be beneficial to look at the identity of a legal person shareholder to see if that shareholder has state or private firm roots. By providing a more fine-grained classification of the identity of legal person shareholders, scholars might be able to better evaluate how a legal person shareholder influences a firm's diversification strategy and its performance. Finally, the history and essence of legal person shareholding and thus its effect on firm strategy and firm performance, deserves scholars' further attention and study.

Secondly, scholars need to take further steps in the study of China's institutional environment. Unusual findings in China (as compared to the West) are regarded as a result from the unique institution of China, but without direct tests of the institutional effect. The literature is not sufficient in providing evidence to show the uniqueness of China and how it is different from other emerging economies such as Malaysia, Thailand, Poland and Russia. Unless scholars establish quantitative standards to measure a country's institutional environment and compare them to some extent on

some level, it will be difficult to understand the institutional effect on the behavior of a firm and human being in a specific context.

Thirdly, the empirical method of GLS also has its own limitations. The main reason for me to use GLS is to correct the bias and address the problem of over time correlation and heterogeneity for the panel data (1991-2002, all the Chinese listed companies). However, this method is vulnerable to the possibility of endogeneity and false causality inferences. Understandably, both diversification and firm performance, and ownership and firm performance could be plagued by endogeneity issues. It is possible to use simultaneous equations to address this issue in the future research.

My findings should reinforce the idea that attention should be given to ownership identity when examining the influence of ownership concentration on various elements of a firm's strategy and performance. More importantly, I hope my study could arouse scholars' interest and attention in studying China's institutional and market developments and thereby provide direction for future research. I would expect to find that research on China's listed companies is a new phenomenon that can provide insights for research on corporate governance and privatization in emerging economies that are gradually transitioning towards a market-oriented economy.

TABLES

Table 3-1 Share Classification (Percentage) for the Chinese Stock Market from 1993 to 2002

Share	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
State	45.25	43.67	37.20	34.03	31.03	33.70	35.85	38.97	33.27	31.51
Legal	26.87	22.04	28.34	30.96	32.93	30.73	28.27	24.54	25.26	28.15
Employee	2.22	0.99	0.35	1.15	2.01	2.01	1.19	0.64	0.83	0.40
A Share	14.59	21.18	20.36	21.06	22.44	23.67	26.13	28.55	32.84	34.62
B Share	5.88	6.11	6.40	6.20	5.95	5.22	4.56	4.01	3.29	2.10
H Share	5.20	6.01	7.36	6.61	5.65	4.67	4.00	3.29	4.51	0.66

Source: Shanghai Securities Yearbook (1993-2002)
Note: Percentages in the rectangle are the average percentages across all the listed companies on Shanghai and Shenzhen Stock Exchange

Table 3-2 Comparison between the literatures on developed countries and emerging economies

DEVELOPED COUNTRY	EMERGING ECONOMIES
Ownership Concentration	
Ownership concentration is positively related to firm performance: Berle & Means, 1932; Hill & Snell, 1989; Hoskisson & Turk, 1990; Boeker: 1992	Ownership concentration is positively related to firm performance: Lins, 2002
Ownership concentration exerts an inverted U-shape impact on firm performance: Johnson et al, 2000; Thomsen & Pedersen, 2000	Ownership concentration exerts an inverted U-shape impact (with steeper slope) on firm performance: Singh et al, 2002
Ownership concentration is not related to firm performance: Demsetz & Lehn, 1985; Denis & Denis, 1995	Ownership concentration is not related to firm performance: Chen & Gong, 2000
Ownership Identity	
Government ownership is inferior to private ownership: Megginson et al, 1994; Boycko et al, 1996; Dewenter & Malatesta, 2001	Government ownership is negatively related to firm performance: Singh, 2002; Megginson et al, 1994
Government ownership is not necessary inferior to private ownership: Caves & Christensen, 1980; Wortzel & Wortzel, 1989	Legal person is positively related to firm performance: Xu & Wang, 1997
Institutional ownership outperforms government ownership: Thomsen & Pedersen, 2000	Two-face relationship between private ownership and firm performance: Tan, 2001a; Tan, 2001b
Diversification	
Diversification is negatively related to firm performance: Lang & Stulz, 1994; Servaes, 1996	Diversification is positive related to firm performance: Chang & Choi, 1988; Ghemawat & Khanna, 1998; Palepu & Khanna, 1996

Table 5-1 Data Sources

Information of Data Source	Meaning
Data Source	www.sunsc.com.cn; www.sse.com.cn; www.sse.org.cn; www.cnlist.com; www.cs.com.cn; DataStream and Bloomberg; CSRC (www.csrc.org.cn).
Industry	The business sectors that a firm is operating in
SIC codes	2, 3, and 4-digit SIC codes of business sectors
Revenue Breakdown	The percentage of revenues in each industry
Identity of top ten owners	Type of top ten largest shareholders for every listed company: state/legal person/A-share/B-share/H-share/foreign share/employee share
Shareholdings of top ten owners	The percentage of shareholdings of top ten largest shareholders
Assets	Total assets of every listed company
Sales	Total sales of every listed company
Debt	Total debt of every listed company
Equity	Total equity of every listed company

Table 5-2 Distribution of the Sample Firms across Industry Categories (2001)

Industry	Sample	State Shares	Legal Person Shares	A-Share	Employee Share	Foreign Share	B-Share	H-Share
Agriculture	0.27	30.72	29.31	37.29	1.03	0.00	1.62	0.00
Mining	1.73	32.71	35.24	30.12	0.00	1.91	3.56	2.74
Construction	3.65	33.89	28.66	37.00	0.43	0.00	3.72	0.00
Manufacturing	59.68	29.34	31.02	32.22	0.56	1.05	5.13	0.65
Transportation and Public Utility	10.14	26.94	34.32	30.42	0.83	0.34	5.71	1.41
Wholesale and Retail Trade	10.75	28.85	27.69	41.06	0.47	0.00	1.90	0.00
Finance, Insurance and Real Estate	6.48	25.47	30.18	37.44	0.72	1.76	4.40	0.00
Services	4.66	22.78	36.08	32.64	0.32	0.54	7.16	0.45
Public Administration	0.73	21.06	35.21	38.87	0.33	0.92	2.13	0.00

Source: China Securities and Futures Statistical Yearbook 2002.

Note: The figures in the rectangles are all percentages. The percentages in the first column (Sample) describe the distribution of listed companies in different industries. The sum of these percentages is not equal to 100% because there exists another category of non-classifiable.

Note: The other percentages are calculated as the average of firms in the according industry. For example, there are 32 companies categorized in the industry of Agriculture, I calculated the state share percentages for all the 32 companies and get the average (30.72%).

Table 5-3 Equity Structure of Listed Companies

Share Type	1992	1995	1998	2001
Not in Free Circulation				
State	46.35	37.20	33.70	33.27
Legal Person	26.87	28.34	30.73	25.26
Employee	3.12	0.35	2.01	0.83
Total	74.34	65.89	66.44	59.36
In Circulation				
A-Shares	11.57	20.36	23.67	32.84
B-Shares	7.88	6.40	5.22	3.29
H-Shares	6.20	7.36	4.67	4.51
Foreign Shares	0.00	0.07	0.46	0.80
Total	25.65	34.19	34.02	41.44

Source: China Securities and Futures Statistical Yearbook 2001.

Note: The figures in the table are all percentages. They are calculated from the average percentages of the listed companies in the according years. For example, in 1992 there are 53 listed companies in the sample. I calculated the percentage of different shareholders for every company in that year. And for the state shareholding, the average for all the listed companies is 26.68%.

Table 5-4 Ownership Concentration for China's listed companies in 2002

	Top Shareholder	Top Five Shareholders	Top Ten Shareholders
Maximum	85.00	93.89	96.16
Minimum	1.95	3.78	4.66
Mean	43.47	58.51	61.03
Median	43.17	60.31	62.79
Standard Deviation	17.50	13.89	13.22

Note: The figures in the table are all percentages. They are calculated based on the top ten largest shareholders for China's listed companies in 2002.

Table 5-5 Variable Description Summary

Variable	Definition
Dependent Variable: Firm Performance	
ROA	Net Income/Total Assets
Q (Tobin's Q)	(Book value of assets + market value of equity)/Total Assets
Dependent Variable: Diversification	
HERF_4	1-? $(Pi)^2$ Herfindahl calculated on 4-digit SIC code level
EN_4	?Pi*log(Pi) Entropy calculated on 4-digit SIC code level
CON	$\sum_j Pj \sum_i Pi * dij$;Concentric Ratio
Independent Variable	
TOP1	Shareholdings of the largest shareholder
TOP5	Shareholdings held by top five largest shareholders
TOP10	Shareholdings held by top ten largest shareholders
HERF5	Sum of the squared percentage of shares held by top largest five shareholders
STATE	the percentage of shareholding held by the State shareholder
LEGAL	the percentage of shareholding held by Legal Person shareholder
Control Variable	
LGASSET	The logarithm of total assets
LGSALE	The logarithm of total sales
DE	The ratio of debt to equity (divided by 1000 to increase the coefficient to the proper extent)
AGE	the year of a firm from its establishment till 2002
IPO	the year of a firm from when it had initial public offering (IPO) till 2002
INDUSTRY	20 dummy variables
LSH	If a firm is listed on Shanghai Stock Exchange, the dummy is equal to one, otherwise it is equal to zero
YEAR	11 dummy variables
PROVINCE	31 dummy variables

Note: ROA is calculated from the financial statements of a listed company's annual reports.

Note: Pi and Pj in the formula of diversification level refer to the revenue breakdown on 4-digit SIC code level for every listed company.

Table 5-6 Correlation Matrix (1)

Variable	MEAN	S. D	1	2	3	4	5	6	7	8
1 ROA	.0350	.1895	1.00							
2 Q	2.6230	2.4933	-.040**	1.00						
3 TOP1	7.6407	17.6077	-.043**	-.193**	1.00					
4 TOP5	10.2895	22.3888	-.050**	-.200**	.955**	1.00				
5 TOP10	10.7341	23.2257	-.053**	-.200**	.948**	.999**	1.00			
6 HERF5	0.2378	.1477	.054**	-.005	.171**	.084**	.072**	1.00		
7 STATE	.3052	.2646	.013	-.042**	.109**	.066**	.058**	.428**	1.00	
8 LEGAL	.3075	.2663	.013*	.064**	-.075**	-.041**	-.035**	-.147**	-.873**	1.00
9 LGASSET	9.0091	.4030	.073**	-.277**	.171**	.159**	.157**	.238**	.146**	-.140**
10 LGSALE	8.6242	.5332	.125**	-.226**	.145**	.127**	.124**	.258**	.158**	-.131**
11 DE	1.7104	21.6084	-.032**	.006	-.004	-.002	-.002	-.015	-.015	.006
12 AGE	6.45	4.384	-.102**	-.037**	.088**	.115**	.121**	-.280**	-.157**	.039**
13 IPO	3.84	2.344	-.157**	-.064**	.159**	.180**	.184**	-.201**	-.096**	-.047**
14 HERF4	.2605	.3685	-.001	.012	.067**	.073**	.074**	-.002	-.054**	.041**
15 EN4	.1489	.1979	-.032**	-.039**	.220**	.231**	.232**	-.020	-.060**	.041**
16 CON	.2171	.4041	-.013	-.031*	.141**	.149**	.150**	-.014	-.034**	.019

Table 5-6 Correlation Matrix (2)

Variable	9	10	11	12	13	14	15	16
1 ROA								
2 Q								
3 TOP1								
4 TOP5								
5 TOP10								
6 HERF5								
7 STATE								
8 LEGAL								
9 LGASSET	1.00							
10 LGSALE	.780**	1.00						
11 DE	.002	-.012	1.00					
12 AGE	.025**	-.021	.024*	1.00				
13 IPO	.171**	.061**	.049*	.489**	1.00			
14 HERF4	.057**	-.006	.004	.051**	.080**	1.00		
15 EN4	.122**	.030*	.014	.119**	.158**	.564**	1.00	
16 CON	.092**	.024*	.009	.076**	.095**	.689**	.816**	1.00

Note: (1) S.D. refers to standard deviation;
(2) **, correlation is significant at the 0.01 level;
*, correlation is significant at the 0.05 level;
(3) Refer to table 5-5 for variable description.

Table 6-1 Revenue Breakdowns of Different Business Sectors of North American Rockwell in 1969

Business Area	Percentage of Total Revenues	Sub-total
Aircraft and missiles	14.3	
Rocket engines	6.7	61.2
Aerospace systems	19.5	
Aerospace electronics	20.7	
Auto parts	20.8	
Industrial machine parts	4.6	25.4
Textile machinery	3.8	3.8
Graphic arts equipment	4.6	4.6
Other	5.0	5.0
Total	100.0	100.0

Source: Remelt (1974): 16.

Table 6-2 Vertically Related SIC Codes

Supplier	Manufacturing	Wholesale
	37	501
24	25	502
14	24, 32	503
	35	504
10, 12, 14	33	505
	36	506
33	34	507
	38	508
14	39	509
24	26	511
	28	512
22	23, 31	513
09	20	514
01, 02, 07, 08	20	515
	30	516
13	29	517
	20	518
	21, 27	519

Table 6-3 Two, Three and Four digit SIC Codes and Revenue Breakdowns of Business Sectors of Shan Dong Dong-E E-Jiao CO., Ltd (2001)

Business	2-digit SIC code	3-digit SIC code	4-digit SIC code	Revenue percentage
Plastic products	30	308	3089	0.8460
Plastic materials and basic shapes	51	516	5162	0.0420
Drugs, proprietaries, and sundries	51	512	5122	0.0184
Medicinals and botanicals	28	283	2833	0.0399
Biological products exc. diagnostic	28	283	2836	0.0524
Surgical and medical instruments	38	384	3841	0.0013

Source: www.sunsc.com.cn

Table 6-4 Revenue Percentages by 2-digit SIC code for Shan Dong Dong-E E-Jiao CO., Ltd (2001)

Business	2-digit SIC code	Sub-total of revenue percentage
Rubber and Misc. plastic products	30	0.8460
Wholesale trade-nondurable goods	51	0.0604
Chemicals and allied product	28	0.0923
Instruments and related products	38	0.0013

Source: www.sunsc.com.cn

Table 6-5 Summary of Diversification Measures and Categories

Company	Specialization Ratio	Related Ratio	Vertical Ratio	Category
Shan Dong Dong-E E-Jiao CO., Ltd	0.8460	0.8460	0.8880	Dominant-Vertical
Gezhouba CO., Ltd	0.8382	0.8382	0	Dominant-Unrelated
XinJiang TianYe CO., Ltd	0.4757	0.5266	0	Conglomerate

Source: www.sunsc.com.cn

Table 6-6 Two, Three and Four digit SIC Codes and Revenue Breakdowns of Business Sectors of Gezhouba CO., Ltd (1999)

Business	2-digit SIC code	3-digit SIC code	4-digit SIC code	Revenue percentage
Brick, stone, & related materials	50	503	5032	0.1305
Heavy construction	16	162	1629	0.8382
Architectural services	87	871	8712	0.0045
Surveying services	87	871	8713	0.0049
Engineering services	87	871	8711	0.0115
Wrecking and demolition work	17	179	1795	0.0002
Electrical work	17	173	1731	0.0027
Non-classifiable establishments	99	999	9999	0.0024
Non-durable goods	51	519	5199	0.0048
Chemicals & allied products	51	516	5169	0.0003

Source: www.sunsc.com.cn

Table 6-7 Revenue Percentages By 2-digit SIC code for Gezhouba CO., Ltd (1999)

Business	2-digit SIC code	Revenue Percentage
Wholesale Trade—Durable Goods	50	0.1305
Heavy Construction, Ex. Building	16	0.8382
Engineering & Management Services	87	0.0209
Special Trade Contractors	17	0.0029
Non-classifiable Establishments	99	0.0024
Wholesale Trade—Non-durable Goods	51	0.0051

Source: www.sunsc.com.cn

Table 6-8 Two, Three and Four digit SIC Codes and Revenue Breakdowns of Business Sectors of XinJiang TianYe CO., Ltd (1999)

Business	2-digit SIC code	3-digit SIC code	4-digit SIC code	Revenue percentage
Agricultural chemicals	28	287	2879	0.4757
Non-residential construction	15	154	1542	0.0184
Transportation Services	47	478	4789	0.3532
Manufacturing industries	39	399	3999	0.1018
Plastics materials and resins	28	282	2821	0.0509

Source: www.sunsc.com.cn

Table 6-9 Revenue Percentages By 2-digit SIC code for XinJiang TianYe CO., Ltd (1999)

Business	2-digit SIC code	Revenue Percentage
Chemicals and Allied Products	28	0.5266
General Building Contractors	15	0.0184
Transportation Services	47	0.3532
Miscellaneous Manufacturing Industries	39	0.1018

Source: www.sunsc.com.cn

Table 6-10 Summary (number) of the category of China's listed companies by year

Year	Single Business	Dominant Vertical	Dominant Unrelated	Dominant Linked	Related Linked	Conglomerate	Total
1991	2	0	0	0	0	0	2
1992	7	0	1	0	0	1	9
1993	43	0	0	0	0	35	78
1994	80	1	1	0	0	56	138
1995	248	3	7	0	0	42	300
1996	392	7	29	0	0	73	501
1997	531	14	57	0	0	107	709
1998	468	16	111	0	0	218	813
1999	447	17	166	0	0	284	914
2000	463	25	215	0	0	372	1075
2001	315	35	319	0	0	400	1069
2002	337	37	370	1	0	441	1186

Source: www.sunsc.com.cn; www.cs.com.cn

Table 6-11 Summary (percentage) of the category of China's listed companies by year

Year	Single Business	Dominant Vertical	Dominant Unrelated	Dominant Linked	Related Linked	Conglomerate
1991	100	0	0	0	0	0
1992	77.77	0	11.11	0	0	11.11
1993	55.12	0	0	0	0	44.87
1994	57.97	0.72	0.72	0	0	40.57
1995	82.66	1	2.33	0	0	14
1996	78.24	1.39	5.78	0	0	14.57
1997	74.89	1.97	8.03	0	0	15.09
1998	57.56	1.96	13.6	0	0	26.81
1999	48.90	1.86	18.16	0	0	31.07
2000	43.06	2.32	20	0	0	34.60
2001	29.46	3.27	29.84	0	0	37.41
2002	28.41	3.11	31.19	0.08	0	37.18

Source: www.sunsc.com.cn; www.cs.com.cn

Table 6-12 Observed Percentage of Firms in Each Strategic Category

Strategic Category	1995	1998	2002
Major Classes			
Single Business	82.66	57.56	28.41
Dominant Business	0.00	1.96	3.11
Related Business	0.00	0.00	0.00
Unrelated Business	14	40.41	68.37
Minor Classes			
Single Business	82.66	57.56	28.41
Dominant Vertical	0.00	1.96	3.11
Dominant Unrelated	0.00	13.6	31.19
Dominant Linked	0.00	0.00	0.08
Related Linked	0.00	0.00	0.00
Conglomerate	14	26.81	37.18
Total number of firms	300	813	1186

Table 6-13 Firms listed from 1995 through 1998 to 2002

Strategic Category	1995	1998	2002
Major Classes			
Single Business	82.66	51.00	28.66
Dominant Business	0.00	2.00	3.00
Related Business	0.00	0.00	0.00
Unrelated Business	14	45.99	66.33
Minor Classes			
Single Business	82.66	51.00	28.66
Dominant Vertical	0.00	2.00	3.00
Dominant Unrelated	0.00	12.33	31.00
Dominant Linked	0.00	0.00	0.00
Related Linked	0.00	0.00	0.00
Conglomerate	14	33.66	35.33
Total number of firms	300	300	300

Table 6-14 Comparison of a Five-year period for Firms initially listed from 1995 to 1997

Category	**IPO in 1995**		**IPO in 1996**		**IPO in 1997**	
Year	1995	2000	1996	2001	1997	2002
Single Business	83.33	54.16	68.81	47.02	76.55	30.62
Dominant Vertical	4.16	8.33	0.49	1.48	0.95	3.82
Dominant Unrelated	0.00	4.16	3.46	26.23	9.56	28.22
Dominant Linked	0.00	0.00	0.00	0.00	0.00	0.00
Related Linked	0.00	0.00	0.00	0.00	0.00	0.00
Conglomerate	12.5	33.33	27.22	25.24	12.91	35.88
Total number of firms	24	24	202	202	209	209

Note: The figures in the table are all percentages except the last row.

Table 6-15 Transition Rates for 1995-1998 Projected Through 2002

	Percentage of 2002 listed companies	
Category	Actual	Projected Using 1995-1998 Rates
Single Business	28.41	34.25
Dominant Vertical	3.11	4.57
Dominant Unrelated	31.19	31.73
Dominant Linked	0.08	0.00
Related Linked	0.00	0.00
Conglomerate	37.18	59.51

Table 6-16 Rumelt's Estimated Percentage of Firms in Each Strategic Category

Strategic Category	**1949**	**1959**	**1969**
Major Classes			
Single Business	34.5	16.2	6.2
Dominant Business	35.4	37.3	29.2
Related Business	26.7	40.0	45.2
Unrelated Business	3.4	6.5	19.4
Minor Classes			
Single Business	34.5	16.2	6.2
Dominant Vertical	15.7	14.8	15.6
Dominant Unrelated	0.9	2.6	0.9
Dominant Linked	18.9	19.8	12.7
Related Linked	26.7	10.9	23.6
Conglomerate	3.4	6.5	19.4
Total number of firms	189	207	183

Source: Rumelt, 1974: 51.

Table 6-17 Rumelt's Transition Rates for 1949-1959 Projected Through 1969

	Percentage of 1969 Top 500 Firms	
Category	Actual	Projected Using 1949-1959 Rates
Single Business	6.2	7.5
Dominant Vertical	15.6	13.4
Dominant Unrelated	0.9	5.1
Dominant Linked	12.7	12.0
Related Linked	45.2	46.7
Conglomerate	19.4	15.3

Source: Rumelt, 1974: 59.

Table 7-1 Summary of Empirical Results

Relationship	Hypotheses	Result
Ownership Concentration & Diversification	Hypothesis 1 For China's listed companies, there is a negative relationship between firm's ownership concentration and diversification level.	Support
Ownership Identity & Firm Diversification	Hypothesis 2 For China's listed companies, the proportion of state ownership will be negatively related to firm's diversification.	Support
	Hypothesis 3 For China's listed companies, firm's diversification will be first negatively and then positively related to the proportion of ownership controlled by legal person.	No Support
Diversification & Performance	Hypothesis 4 As a firm's diversification level increases, its performance will first be positively and then be negatively related to its diversification.	Partial Support
Diversification & Performance (contingent on ownership concentration)	Hypothesis 5 Firm's ownership concentration would make firm diversification have a greater positive impact on firm performance up to moderate levels of diversification, after which it would make firm diversification have a greater negative impact on firm performance.	No Support
Diversification & Performance (contingent on ownership identity)	Hypothesis 6a State shareholding would make firm diversification have a greater negative impact on firm performance as diversification increases.	No Support
	Hypothesis 6b Legal Person shareholding would make firm diversification have a greater positive impact on firm performance as diversification increases.	No Support
Comparison between firms of different diversification categories (Rumelt's scheme)	Hypothesis 7a For the firms with the state ownership as majority, Single Business firms will show the best performance, followed by Related-Constrained firms. Unrelated Business firms will show the worst performance.	Partial Support
	Hypothesis 7b For the firms with legal person shareholding as majority, Related-Linked firms will perform best, followed by Unrelated business firms. Single Business firms will show the worst performance.	Partial Support

Table 7-2 Ownership Concentration and Firm Diversification

Dependent Variable: Herfindahl_4			
Year	1991-2002		
Method	Random		Fixed
TOP5	-0.0014***		-0.0014**
	(0.0005)		(0.0005)
LOGSALES	0.0399***		0.0219**
	(0.0133)		(0.0124)
DE	-0.0133		0.0496
	(0.0095)		(0.1394)
AGE	0.0008		0.0064
	(0.0012)		(0.0147)
IPO	-0.0102***		-0.0484**
	(0.0030)		(0.0229)
LSH	0.1086***		-- --
	(0.0134)		
Y1992	0.1346***		-0.1632
	(0.0450)		(0.1547)
Y1993	-0.2207***		-0.4606***
	(0.0323)		(0.1334)
Y1994	-0.2259***		-0.4206***
	(0.0286)		(0.1142)
Y1995	-0.2208***		-0.3813***
	(0.0270)		(0.0953)
Y1996	-0.1962***		-0.3146***
	(0.0245)		(0.0767)
Y1997	-0.1755***		-0.2588***
	(0.0228)		(0.0588)
Y1998	-0.0655***		-0.1168***
	(0.0218)		(0.0417)
Y1999	-0.0368*		-0.0573**
	(0.0213)		(0.0272)
Y2000	-0.0050		0.0051
	(0.0181)		(0.0182)
Y2001	0.0134		0.0212
	(0.0170)		(0.0169)
Y2002	0.0963**		0.1438***
	(0.0396)		(0.0454)
PROVINCE		#	
INDUSTRY		#	
CONSTANT	-0.5254*		-0.5698**
	(0.2811)		(0.2277)
Observation		7043	
Group		1208	
R-Square	0.0881		0.0970

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

Table 7-3 Firm Diversification and State Ownership

Dependent Variable: Herfindahl_4				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
STATE	-0.0490***	-0.0398*	-0.0992	-0.0752
	(0.0173)	(0.0226)	(0.0613)	(0.0844)
$STATE^2$			0.0770	0.0544
			(0.0902)	(0.1249)
LOGSALE	0.0410***	0.0213*	0.0410***	0.0217*
	(0.0132)	(0.0124)	(0.0132)	(0.0125)
DE	-0.0117	0.0500	-0.0116	0.0501
	(0.0095)	(0.1394)	(0.0095)	(0.1395)
AGE	0.0007	0.0049	0.0008	0.0052
	(0.0012)	(0.0147)	(0.0012)	(0.0147)
IPO	-0.0099***	-0.0449**	-0.0096***	-0.0449*
	(0.0030)	(0.0229)	(0.0030)	(0.0229)
LSH	0.1073***	-- --	0.1069***	-- --
	(0.0134)		(0.0134)	
Y1992	0.1344***	-0.1504	0.1345***	-0.1496
	(0.0449)	(0.1548)	(0.0449)	(0.1548)
Y1993	-0.2208***	-0.4492***	-0.2201***	-0.4483***
	(0.0323)	(0.1335)	(0.0343)	(0.1335)
Y1994	-0.2270***	-0.4117***	-0.2263***	-0.4108***
	(0.0286)	(0.1142)	(0.0286)	(0.1143)
Y1995	-0.2226***	-0.3747***	-0.2218***	-0.3738***
	(0.0270)	(0.0954)	(0.0270)	(0.0954)
Y1996	-0.1981***	-0.3099***	-0.1976***	-0.3093***
	(0.0245)	(0.0767)	(0.0245)	(0.0768)
Y1997	-0.1773***	-0.2558***	-0.1771***	-0.2554***
	(0.0228)	(0.0588)	(0.0228)	(0.0588)
Y1998	-0.0694***	-0.1172***	-0.0695***	-0.1171***
	(0.0218)	(0.0417)	(0.0218)	(0.0417)
Y1999	-0.0414*	-0.0599**	-0.0417**	-0.0601**
	(0.0213)	(0.0272)	(0.0218)	(0.0272)
Y2000	-0.0076	0.0025	-0.0079	0.0022
	(0.0181)	(0.0182)	(0.0181)	(0.0182)
Y2001	0.0103	0.0185	0.0106	0.0186
	(0.0170)	(0.0170)	(0.0170)	(0.0169)
Y2002	0.0098	0.0534*	0.0094	0.0530*
	(0.0211)	(0.0289)	(0.0211)	(0.0289)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	-0.0849	0.0316	-0.0821	0.0290
	(0.2694)	(0.1779)	(0.2695)	(0.1780)
Observation			7043	
Group			1208	
R-Square	0.0881	0.0965	0.0881	0.0966

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

Table 7-4 Firm Diversification and Legal Person Shareholding

Dependent Variable: Herfindahl_4				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
LEGAL	0.0368**	0.0259	-0.0589	-0.1224
	(0.0167)	(0.0212)	(0.0614)	(0.0785)
$LEGAL^2$			0.1347	0.2091**
			(0.1832)	(0.1065)
LOGSALE	0.0418***	0.0216*	0.0428***	0.0216*
	(0.0132)	(0.0124)	(0.0133)	(0.0124)
DE	-0.0124	0.0437	-0.0121	0.0437
	(0.0095)	(0.1205)	(0.0095)	(0.1105)
AGE	0.0008	0.0055	0.0010	0.0063
	(0.0012)	(0.0147)	(0.0012)	(0.0147)
IPO	-0.0091***	-0.0457**	-0.0088***	-0.0451**
	(0.0029)	(0.0229)	(0.0030)	(0.0229)
LSH	0.1074***	-- --	0.1072***	-- --
	(0.0134)		(0.0134)	
Y1992	0.1359***	-0.1563	0.1345***	-0.1531
	(0.0449)	(0.1548)	(0.0450)	(0.1548)
Y1993	-0.2189***	-0.4538***	-0.2174***	-0.4474***
	(0.0323)	(0.1334)	(0.0323)	(0.1335)
Y1994	-0.2246***	-0.4149***	-0.2235***	-0.4098***
	(0.0286)	(0.1142)	(0.0386)	(0.1142)
Y1995	-0.2201***	-0.3769***	-0.2191***	-0.3724***
	(0.0270)	(0.0954)	(0.0270)	(0.0954)
Y1996	-0.1961***	-0.3116***	-0.1953***	-0.3081***
	(0.0245)	(0.0767)	(0.0245)	(0.0767)
Y1997	-0.1758***	-0.2571***	-0.1753***	-0.2546***
	(0.0228)	(0.0588)	(0.0228)	(0.0588)
Y1998	-0.0680***	-0.1174***	-0.0678***	-0.1160***
	(0.0218)	(0.0417)	(0.0218)	(0.0417)
Y1999	-0.0404*	-0.0595**	-0.0406*	-0.0593**
	(0.0213)	(0.0272)	(0.0213)	(0.0272)
Y2000	-0.0072	0.0030	-0.0078	0.0020
	(0.0181)	(0.0182)	(0.0181)	(0.0182)
Y2001	0.0103	0.0188	0.0108	0.0195
	(0.0170)	(0.0170)	(0.0170)	(0.0170)
Y2002	0.0096	0.0544*	0.0093	0.0531*
	(00211)	(0.0289)	(0.0211)	(0.0289)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	-0.1194	0.0076	-0.1308	0.0049
	(0.2705)	(0.1777)	(0.2707)	(0.1776)
Observation			7043	
Group			1208	
R-Square	0.0878	0.0963	0.0882	0.0969

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

Table 7-5 Firm Performance and Firm Diversification(1)

Dependent Variable: Tobin's Q				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.8070***	0.9493***	0.1887	0.1811
	(0.0969)	(0.1107)	(0.1433)	(0.1556)
$HERF\_4^2$			-0.1100	-0.1808
			(0.1423)	(0.1500)
LOGSALE	-0.9490***	-0.9307***	-0.9460***	-0.9348***
	(0.1037)	(0.1051)	(0.1073)	(0.1052)
DE	-0.1158	1.1808	-0.1157	1.1789
	(0.0775)	(1.0890)	(0.0775)	(1.0890)
AGE	-0.0158	-0.0126	-0.0159	-0.0147
	(0.0102)	(0.1240)	(0.0102)	(0.1240)
IPO	-0.0481**	-0.2108	-0.0482**	-0.2091
	(0.0238)	(0.1931)	(0.0238)	(0.1931)
LSH	0.1214	-- --	0.1237	-- --
	(0.1065)		(0.1066)	
Y1992	-1.7903***	-2.1808*	-1.7707***	-2.1545*
	(0.3639)	(1.3026)	(0.3648)	(1.3028)
Y1993	-2.1563***	-2.6008**	-2.1490***	-2.5926**
	(0.2617)	(1.1241)	(0.2619)	(1.1240)
Y1994	-2.8867***	-3.3057***	-2.8789***	-3.2957***
	(0.2617)	(0.9623)	(0.2321)	(0.9623)
Y1995	-3.0806***	-3.4285***	-3.0736***	-3.4195***
	(0.2193)	(0.8037)	(0.2195)	(0.8037)
Y1996	-2.1582***	-2.3791***	-2.1537***	-2.3737***
	(0.1993)	(0.6468)	(0.1994)	(0.6467)
Y1997	-1.6660***	-1.7955***	-1.6623***	-1.7908***
	(0.1858)	(0.4957)	(0.1859)	(0.4957)
Y1998	-1.6629***	-1.7633***	-1.6580***	-1.7506***
	(0.1777)	(0.3515)	(0.1778)	(0.3516)
Y1999	-1.3330***	-1.3370***	-1.3304***	-1.3331***
	(0.1734)	(0.2294)	(0.1734)	(0.2294)
Y2000	0.2042	0.2646*	0.2067	0.2686*
	(0.1478)	(0.1534)	(0.1479)	(0.1534)
Y2001	-2.4086***	-2.4200***	-2.4115***	-2.4245***
	(0.1384)	(0.1429)	(0.1385)	(0.1429)
Y2002	-2.4477***	-2.2708***	-2.4492***	-2.2726***
	(0.1716)	(0.2435)	(0.1716)	(0.2435)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	25.5835***	13.7841***	25.5648***	13.8035***
	(2.1461)	(1.4944)	(2.1467)	(1.4944)
Observation			7043	
Group			1208	
R-Square	0.2444	0.2225	0.2445	0.2227

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

Table 7-6 Firm Performance and Firm Diversification(2)

Dependent Variable: ROA				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.0192***	0.0346***	0.0259**	0.0385***
	(0.0072)	(0.0098)	(0.0117)	(0.0138)
$HERF\_4^2$			-0.0087	-0.0053
			(0.0120)	(0.0133)
LOGSALE	0.0634***	0.1434***	0.0632***	0.1433***
	(0.0072)	(0.0093)	(0.0072)	(0.0093)
DE	-0.0692***	-0.1494*	-0.0692***	-0.1493*
	(0.0055)	(0.1079)	(0.0055)	(0.1079)
AGE	0.0000	0.0036	0.0000	0.0035
	(0.0005)	(0.0110)	(0.0005)	(0.0110)
IPO	-0.0062***	-0.0057	-0.0062***	-0.0057
	(0.0012)	(0.0172)	(0.0012)	(0.0172)
LSH	-0.0085	-- --	-0.0084	-- --
	(0.0053)		(0.0053)	
Y1992	0.0446	0.1080	0.0465	0.1088
	(0.0295)	(0.1161)	(0.0296)	(0.1161)
Y1993	0.0324	0.0779	0.0331	0.0782
	(0.0203)	(0.1002)	(0.0203)	(0.1002)
Y1994	0.0131	0.0490	0.0138	0.0493
	(0.0183)	(0.0857)	(0.0183)	(0.0857)
Y1995	0.0011	0.0306	0.0017	0.0308
	(0.0178)	(0.0716)	(0.0178)	(0.0716)
Y1996	0.0032	0.0237	0.0036	0.0239
	(0.0165)	(0.0576)	(0.0165)	(0.0576)
Y1997	0.0004	0.0130	0.0007	0.0131
	(0.0158)	(0.0441)	(0.0058)	(0.0441)
Y1998	-0.0141	-0.0064	-0.0137	-0.0062
	(0.0155)	(0.0313)	(0.0155)	(0.0313)
Y1999	-0.0175	-0.0168	-0.0173	-0.0167
	(0.0154)	(0.0204)	(0.0154)	(0.0204)
Y2000	-0.0238*	-0.0345**	-0.0236*	-0.0343**
	(0.0131)	(0.0136)	(0.0131)	(0.0136)
Y2001	-0.0384***	-0.0460***	-0.0350***	-0.0461***
	(0.0124)	(0.0127)	(0.0124)	(0.0127)
Y2002	-0.0510***	-0.0749***	-0.0512***	-0.0750***
	(0.0152)	(0.0217)	(0.0152)	(0.0217)
PROVINCE		#		
INDUSTRY		#		
CONSTANT	-0.5691***	-1.2218***	-0.5709***	-1.2212***
	(0.1268)	(0.1332)	(0.1268)	(0.1332)
Observation		7043		
Group		1208		
R-Square	0.0627	0.0782	0.0628	0.0782

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

Table 7-7 Firm Performance, Firm Diversification and Ownership Concentration (1)

Dependent Variable: Tobin's Q				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.9358***	0.9756***	0.7202**	0.7559**
	(0.1033)	(0.1163)	(0.3214)	(0.3548)
$HERF\_4^2$			-0.6813*	-0.7001*
			(0.3535)	(0.3883)
TOP5	-0.0155***	-0.0162***	-0.0145***	-0.0154***
	(0.0046)	(0.0050)	(0.0046)	(0.0050)
TOP5*HERF_4	-0.0043	-0.0047	-0.0139**	-0.0111
	(0.0039)	(0.0043)	(0.0065)	(0.0070)
$TOP5*HERF\_4^2$			0.0107	0.0045
			(0.0070)	(0.0077)
LOGSALE	-0.9660***	-0.9272***	-0.9692***	-0.9316***
	(0.1073)	(0.1050)	(0.1075)	(0.1051)
DE	-0.1206	1.1866	-0.1211	1.1634
	(0.0774)	(1.0889)	(0.0774)	(1.0889)
AGE	-0.0168*	-0.0021	-0.0170*	-0.0069
	(0.0102)	(0.1239)	(0.0102)	(0.1239)
IPO	-0.0577**	-0.2361	-0.0585**	-0.2325
	(0.0239)	(0.1931)	(0.0239)	(0.1931)
LSH	0.1354	-- --	0.1420	-- --
	(0.1067)		(0.1067)	
Y1992	-1.8218***	-2.2433*	-1.7183***	-2.1731*
	(0.3638)	(1.3015)	(0.3676)	(1.3022)
Y1993	-2.1746***	-2.0483**	-2.1178***	-2.6115**
	(0.2617)	(1.1232)	(0.2634)	(1.1233)
Y1994	-2.8983***	-3.3433***	-2.8372***	-3.3020***
	(0.2320)	(0.9615)	(0.2341)	(0.9618)
Y1995	-3.0816***	-3.4516***	-3.0244***	-3.4128***
	(0.2193)	(0.8013)	(0.2212)	(0.8035)
Y1996	-2.1526***	-2.3901***	-2.1101***	-2.3612***
	(0.1993)	(0.6463)	(0.2005)	(0.6465)
Y1997	-1.6539***	-1.7953***	-1.6175***	-1.7699***
	(0.1858)	(0.4954)	(0.1867)	(0.4956)
Y1998	-1.6464***	-1.7549***	-1.6105***	-1.7285***
	(0.1776)	(0.3512)	(0.1785)	(0.3517)
Y1999	-1.3096***	-1.3176***	-1.2890***	-1.3019***
	(0.1734)	(0.2293)	(0.1736)	(0.2295)
Y2000	0.2304	0.2904*	0.2476*	0.3044**
	(0.1478)	(0.1534)	(0.1481)	(0.1537)
Y2001	-2.3905***	-2.4024***	-2.4076***	-2.4138***
	(0.1384)	(0.1428)	(0.1386)	(0.1432)
Y2002	-1.4371***	-1.2087***	-1.4385***	-1.1938***
	(0.3224)	(0.3832)	(0.3225)	(0.3834)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	11.1819***	13.7949***	11.2120***	13.7756***
	(1.9924)	(1.4733)	(1.9936)	(1.4938)
Observation			7043	
Group			1208	
R-Square	0.2467	0.2243	0.2472	0.2248

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.
For the meanings of the variables, please refer to Table 5-5.

Table 7-8 Firm Performance, Firm Diversification and Ownership Concentration (2)

Dependent Variable: ROA				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.0139* (0.0077)	0.0308*** (0.0103)	0.0188 (0.0254)	0.0479 (0.0316)
$HERF\_4^2$			-0.0056 (0.0280)	-0.0193 (0.0346)
TOP5	0.0012*** (0.0003)	0.0018*** (0.0004)	0.0012*** (0.0004)	0.0018*** (0.0004)
TOP5*HERF_4	0.0007** (0.0003)	0.0006* (0.0003)	0.0006 (0.0005)	0.0003 (0.0006)
$TOP5*HERF\_4^2$			0.0001 (0.0005)	0.0005 (0.0006)
LOGSALE	0.0622*** (0.0072)	0.1430*** (0.0093)	0.0624*** (0.0072)	0.1432*** (0.0093)
DE	-0.0688*** (0.0055)	-0.1487* (0.1079)	-0.0688*** (0.0055)	-0.1488* (0.1079)
AGE	0.0001 (0.0005)	0.0024 (0.0110)	0.0001 (0.0005)	0.0022 (0.0110)
IPO	-0.0055*** (0.0013)	-0.0028 (0.0172)	-0.0055*** (0.0013)	-0.0027 (0.0171)
LSH	-0.0095* (0.0053)	-- --	-0.0094* (0.0053)	-- --
Y1992	0.0471 (0.0294)	0.1152 (0.1159)	0.0481 (0.0299)	0.1173 (0.1160)
Y1993	0.0322 (0.0203)	0.0832 (0.1000)	0.0327 (0.0204)	0.0843 (0.1000)
Y1994	0.0122 (0.0183)	0.0530 (0.0856)	0.0127 (0.0185)	0.0543 (0.0856)
Y1995	-0.0005 (0.0178)	0.0330 (0.0715)	-0.0000 (0.0180)	0.0343 (0.0715)
Y1996	0.0012 (0.0165)	0.0247 (0.0575)	0.0016 (0.0166)	0.0257 (0.0576)
Y1997	-0.0017 (0.0158)	0.0127 (0.0441)	-0.0014 (0.0159)	0.0136 (0.0441)
Y1998	-0.0162 (0.0155)	-0.0076 (0.0312)	-0.0159 (0.0156)	-0.0067 (0.0313)
Y1999	-0.0201 (0.0154)	-0.0191 (0.0204)	-0.0199 (0.0154)	-0.0187 (0.0204)
Y2000	-0.0265** (0.0131)	-0.0375*** (0.0136)	-0.0263** (0.0131)	-0.0371** (0.0136)
Y2001	-0.0365*** (0.0124)	-0.0480*** (0.0127)	-0.0367*** (0.0124)	-0.0486*** (0.0127)
Y2002	-0.1396*** (0.0278)	-0.1985*** (0.0341)	-0.1398*** (0.0279)	-0.1993*** (0.0341)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	-0.5535*** (0.1267)	-1.2225*** (0.1330)	-0.5542*** (0.1268)	-1.2256*** (0.1330)
Observation			7043	
Group			1208	
R-Square	0.0662	0.0819	0.0662	0.0820

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.
For the meanings of the variables, please refer to Table 5-5.

Table 7-9 Firm Performance, Firm Diversification and State Ownership (1)

Dependent Variable: Tobin's Q				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.9908***	0.9395***	0.1386	0.1373
	(0.1331)	(0.1489)	(0.1654)	(0.1788)
$HERF\_4^2$			-0.0708	-0.1535
			(0.1510)	(0.1585)
STATE	0.1277	0.1634	0.0831	0.1163
	(0.1644)	(0.2129)	(0.1688)	(0.2168)
STATE*HERF_4	0.0698	0.0447	0.7507	0.6743
	(0.3242)	(0.3665)	(0.7474)	(0.8407)
$STATE*HERF\_4^2$			-0.7839	-0.6714
			(0.8169)	(0.9050)
LOGSALE	-0.9473***	-0.9289***	-0.9463***	0.9316***
	(0.1073)	(0.1051)	(0.1074)	(0.1052)
DE	-0.1183	1.1837	-0.1190	1.1815
	(0.0775)	(1.0891)	(0.0775)	(1.0892)
AGE	-0.0152	-0.0101	-0.0153	-0.0158
	(0.0102)	(0.1240)	(0.0102)	(0.1241)
IPO	-0.0466*	-0.2162	-0.0464*	-0.2100
	(0.0238)	(0.1933)	(0.0238)	(0.1934)
LSH	0.1219	-- --	0.1260	-- --
	(0.1066)		(0.1066)	
Y1992	-1.7845***	-2.2102*	-1.7317***	-2.1517*
	(0.3640)	(1.3032)	(0.3665)	(1.3040)
Y1993	-2.1484***	-2.6253**	-2.1210***	-2.5942**
	(0.2618)	(1.1247)	(0.2628)	(1.1251)
Y1994	-2.8774***	-3.3237***	-2.8496***	-3.2916***
	(0.2321)	(0.9628)	(0.2332)	(0.9631)
Y1995	-3.0721***	-3.4425***	-3.0475***	-3.4142***
	(0.2194)	(0.8041)	(0.2203)	(0.8044)
Y1996	-2.1512***	-2.3897***	-2.1319***	-2.3684***
	(0.1994)	(0.6470)	(0.2001)	(0.6473)
Y1997	-1.6605***	-1.8031***	-1.6441***	-1.7850***
	(0.1859)	(0.4959)	(0.1864)	(0.4962)
Y1998	-1.6534***	-1.7610***	-1.6372***	-1.7423***
	(0.1779)	(0.3516)	(0.1784)	(0.3519)
Y1999	-1.3236***	-1.3302***	-1.3141***	-1.3197***
	(0.1736)	(0.2296)	(0.1738)	(0.2297)
Y2000	0.2062	0.2680	0.2148	0.2767
	(0.1479)	(0.1534)	(0.1480)	(0.1536)
Y2001	-2.4034***	-2.4136***	-2.4107***	-2.4222***
	(0.1385)	(0.1431)	(0.1386)	(0.1432)
Y2002	-2.4459***	-2.2628***	-2.4536***	-2.2712***
	(0.1716)	(0.2437)	(0.1717)	(0.2439)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	12.4379***	13.7084***	12.3611***	13.7114***
	(2.0233)	(1.4969)	(2.0253)	(1.4973)
Observation			7043	
Group			1208	
R-Square	0.2446	0.2226	0.2447	0.2229

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.
For the meanings of the variables, please refer to Table 5-5.

Table 7-10 Firm Performance, Firm Diversification and State Ownership (2)

Dependent Variable: ROA				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.0282***	0.0449***	0.0296**	0.0417**
	(0.0101)	(0.0132)	(0.0135)	(0.0159)
$HERF\_4^2$			-0.0019	0.0055
			(0.0128)	(0.0141)
STATE	-0.0073	-0.0005	-0.0114	-0.0080
	(0.0110)	(0.0189)	(0.0114)	(0.0193)
STATE*HERF_4	-0.0326	-0.0384	0.0369	0.1060
	(0.0247)	(0.0326)	(0.0589)	(0.0749)
$STATE*HERF\_4^2$			-0.0823	-0.1718**
			(0.0649)	(0.0806)
LOGSALE	0.0638***	0.1433***	0.0639***	0.1437***
	(0.0072)	(0.0093)	(0.0072)	(0.0093)
DE	-0.0686***	-0.1495*	-0.0688***	-0.1496*
	(0.0055)	(0.1079)	(0.0055)	(0.1079)
AGE	-0.0000	0.0037	-0.0000	0.0029
	(0.0005)	(0.0110)	(0.0005)	(0.0110)
IPO	-0.0064***	-0.0059	-0.0063***	-0.0050
	(0.0012)	(0.0172)	(0.0012)	(0.0172)
LSH	-0.0086	-- --	-0.0083	-- --
	(0.0053)		(0.0053)	
Y1992	0.0448	0.1086	0.0503*	0.1165
	(0.0295)	(0.1161)	(0.0297)	(0.1162)
Y1993	0.0316	0.0773	0.0344*	0.0823
	(0.0213)	(0.1002)	(0.0204)	(0.1002)
Y1994	0.0121	0.0483	0.0148	0.0532
	(0.0183)	(0.0858)	(0.0184)	(0.0858)
Y1995	0.0001	0.0300	0.0025	0.0343
	(0.0178)	(0.0716)	(0.0179)	(0.0716)
Y1996	0.0024	0.0232	0.0044	0.0268
	(0.0165)	(0.0576)	(0.0165)	(0.0576)
Y1997	-0.0003	0.0124	0.0013	0.0154
	(0.0158)	(0.0442)	(0.0159)	(0.0442)
Y1998	-0.0152	-0.0073	-0.0136	-0.0046
	(0.0155)	(0.0313)	(0.0155)	(0.0313)
Y1999	-0.0188	-0.0176	-0.0178	-0.0161
	(0.0154)	(0.0204)	(0.0154)	(0.0204)
Y2000	-0.0240*	-0.0346*	-0.0231*	-0.0333**
	(0.0131)	(0.0136)	(0.0131)	(0.0136)
Y2001	-0.0354***	-0.0464***	-0.0359***	-0.0476***
	(0.0124)	(0.0127)	(0.0124)	(0.0127)
Y2002	-0.0512***	-0.0751***	-0.0519***	-0.0767***
	(0.0152)	(0.0217)	(0.0152)	(0.0217)
PROVINCE			#	
INDUSTRY			#	
CONSTANT	-0.5846***	-1.2183***	-0.5886***	-1.2229***
	(0.1270)	(0.1334)	(0.1270)	(0.1334)
Observation			7043	
Group			1208	
R-Square	0.0635	0.0785	0.0641	0.0792

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.
For the meanings of the variables, please refer to Table 5-5.

Table 7-11 Firm Performance, Firm Diversification and Legal Person (1)

Dependent Variable: Tobin's Q				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.2162	0.1270	0.9654**	0.9687**
	(0.1426)	(0.1628)	(0.4061)	(0.4535)
$HERF\_4^2$			-0.8987**	-1.0046**
			(0.4554)	(0.5057)
LEGAL	0.0753	0.0656	0.1521	0.1459
	(0.1616)	(0.2045)	(0.1664)	(0.2086)
LEGAL*HERF_4	-0.3330	-0.2345	-1.6777**	-1.6607*
	(0.3202)	(0.3606)	(0.8039)	(0.8923)
$LEGAL*HERF\_4^2$			1.6001*	1.6648*
			(0.8927)	(0.9825)
LOGSALE	-0.9473***	-0.9312***	-0.9468***	0.9337***
	(0.1073)	(0.1051)	(0.1074)	(0.1052)
DE	-0.1152	1.1799	-0.1177	1.1805
	(0.0775)	(1.0890)	(0.0775)	(1.0891)
AGE	-0.0158	-0.0140	-0.0160	-0.0250
	(0.0102)	(0.1240)	(0.0102)	(0.1241)
IPO	-0.0483**	-0.2072	-0.0480**	-0.1927
	(0.0238)	(0.1933)	(0.0238)	(0.1934)
LSH	0.1220	-- --	0.1278	-- --
	(0.1065)		(0.1066)	
Y1992	-1.7910***	-2.1636*	-1.7366***	-2.0751
	(0.3639)	(1.3031)	(0.3652)	(1.3035)
Y1993	-2.1575***	-2.5864**	-2.1275***	-2.5298**
	(0.2617)	(1.1245)	(0.2621)	(1.1246)
Y1994	-2.8868***	-3.2931***	-2.8549***	-3.2362***
	(0.2319)	(0.9626)	(0.2325)	(0.9628)
Y1995	-3.0800***	-3.4176***	-3.0499***	-3.3666***
	(0.2193)	(0.8040)	(0.2198)	(0.8043)
Y1996	-2.1593***	-2.3716***	-2.1368***	-2.3334***
	(0.1993)	(0.6470)	(0.1996)	(0.6471)
Y1997	-1.6654***	-1.7889***	-1.6465***	-1.7580***
	(0.1858)	(0.4959)	(0.1860)	(0.4960)
Y1998	-1.6614***	-1.7589***	-1.6434***	-1.7314***
	(0.1778)	(0.3516)	(0.1780)	(0.3518)
Y1999	-1.3316***	-1.3352***	-1.3217***	-1.3210***
	((0.1736)	(0.2296)	(0.1736)	(0.2296)
Y2000	0.2033	0.2632*	0.2121	0.2724*
	(0.1479)	(0.1534)	(0.1479)	(0.1534)
Y2001	-2.4073***	-2.4201***	-2.4181***	-2.4337***
	(0.1386)	(0.1431)	(0.1387)	(0.1432)
Y2002	-2.4484***	-2.2745***	-2.4632***	-2.2955***
	(0.1716)	(0.2437)	(0.1717)	(0.2439)
PROVINCE		#		
INDUSTRY		#		
CONSTANT	12.3487***	13.7633***	12.2987***	13.6921***
	(2.0266)	(1.4956)	(2.0282)	(1.4962)
Observation		7043		
Group		1208		
R-Square	0.2444	0.2226	0.2449	0.2232

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.
For the meanings of the variables, please refer to Table 5-5.

Table 7-12 Firm Performance, Firm Diversification and Legal Person (2)

Dependent Variable: ROA				
Year	1991-2002			
Method	Random	Fixed	Random	Fixed
HERF_4	0.0130	0.0232	0.0169	0.0244
	(0.0106)	(0.0145)	(0.0320)	(0.0404)
$HERF\_4^2$			-0.0049	-0.0014
			(0.0361)	(0.0448)
LEGAL	0.0128	0.0147	0.0129	0.0148
	(0.0109)	(0.0182)	(0.0113)	(0.0186)
LEGAL*HERF_4	0.0182	0.0334	0.0232	0.0368
	(0.0243)	(0.0321)	(0.0640)	(0.0795)
$LEGAL*HERF\_4^2$			-0.0075	-0.0053
			(0.0711)	(0.0876)
LOGSALE	0.0634***	0.1435***	0.0632***	0.1434***
	(0.0072)	(0.0093)	(0.0072)	(0.0093)
DE	-0.0689***	-0.1492*	-0.0689***	-0.1492*
	(0.0055)	(0.1093)	(0.0055)	(0.1079)
AGE	-0.0000	0.0037	-0.0000	0.0037
	(0.0055)	(0.0110)	(0.0005)	(0.0110)
IPO	-0.0060***	-0.0057	-0.0060***	-0.0056
	(0.0012)	(0.0172)	(0.0012)	(0.0172)
LSH	-0.0086	-- --	-0.0084	-- --
	(0.0053)		(0.0053)	
Y1992	0.0453	0.1067	0.0469	0.1072
	(0.0295)	(0.1161)	(0.0296)	(0.1162)
Y1993	0.0328	0.0775	0.0334	0.0776
	(0.0203)	(0.1002)	(0.0203)	(0.1002)
Y1994	0.0133	0.0486	0.0138	0.0487
	(0.0183)	(0.0858)	(0.0183)	(0.0858)
Y1995	0.0012	0.0304	0.0017	0.0305
	(0.0178)	(0.0716)	(0.0179)	(0.0717)
Y1996	0.0032	0.0236	0.0035	0.0237
	(0.0165)	(0.0576)	(0.0165)	(0.0577)
Y1997	0.0004	0.0128	0.0006	0.0129
	(0.0158)	(0.0442)	(0.0158)	(0.0442)
Y1998	-0.0149	-0.0075	-0.0146	-0.0074
	(0.0155)	(0.0313)	(0.0155)	(0.0313)
Y1999	-0.0187	-0.0180	-0.0185	-0.0180
	(0.0154)	(0.0204)	(0.0154)	(0.0204)
Y2000	-0.0240*	-0.0345	-0.0239*	-0.0345
	(0.0131)	(0.0136)	(0.0131)	(0.0136)
Y2001	-0.0357***	-0.0470***	-0.0359***	-0.0471***
	(0.0124)	(0.0127)	(0.0124)	(0.0127)
Y2002	-0.0516***	-0.0753***	-0.0516***	-0.0753***
	(0.0152)	(0.0217)	(0.0152)	(0.0217)
PROVINCE		#		
INDUSTRY		#		
CONSTANT	-0.5170***	-1.2249***	-0.5193***	-1.2242***
	(0.1153)	(0.1333)	(0.1153)	(0.1334)
Observation		7043		
Group		1208		
R-Square	0.0637	0.0787	0.0637	0.0787

Notes:
* significant at 0.1 level; ** significant at 0.05 level; *** significant at 0.01 level.

For the meanings of the variables, please refer to Table 5-5.

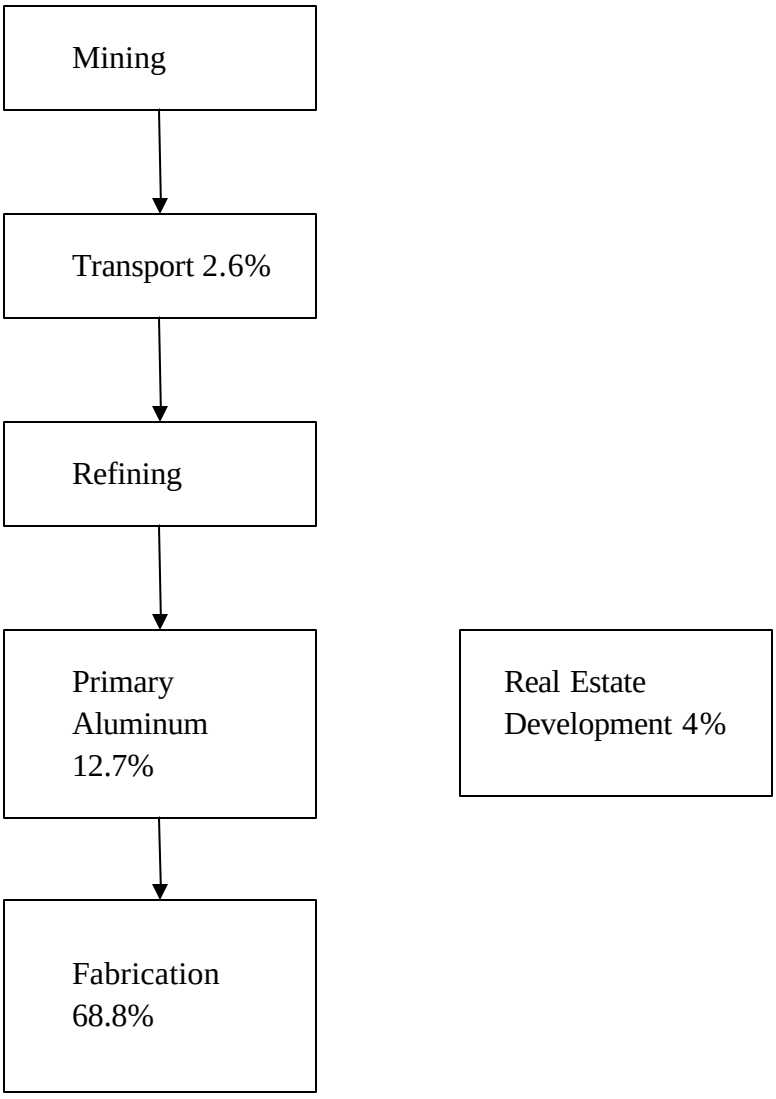
Table 7-13 Performance Comparison for Firms (1991-2002)

Rumelt's Classification	Number	ROA (Mean)		Tobin's Q (Mean)	
State Controlled					
1 Single Business	2020	0.0409	-- --	2.5266	-- --
2 Dominant Vertical	84	0.0142		2.2722	
3 Dominant Unrelated	689	0.0244	A	2.2042	A
4 Dominant Linked	0	-- --		-- --	
5 Related Linked	0	-- --		-- --	
6 Conglomerate	1055	0.0374	C	2.5667	C
Sub-Total	3848	0.0364		2.4743	
Legal Person Controlled					
1 Single Business	1209	0.0424	-- --	2.9018	-- --
2 Dominant Vertical	50	0.0208		2.8660	
3 Dominant Unrelated	466	0.0194	A	2.8065	
4 Dominant Linked	0	-- --		-- --	
5 Related Linked	0	-- --		-- --	
6 Conglomerate	793	0.0338		2.9973	C
Sub-Total	2518	0.0350		2.9135	

Note: Differences in means tested for each grouping using ANOVA, with random and fixed effects, and an LSD test for comparisons of means across categories (at 0.1 significance level). A indicates mean of category for performance measure significantly different than that for firms in the Single Business category. B indicates mean of category for performance measure significantly different than that for firms in the Dominant Vertical category. C indicates mean of category for performance measure significantly different than that for firms in the Dominant Unrelated category.

FIGURES

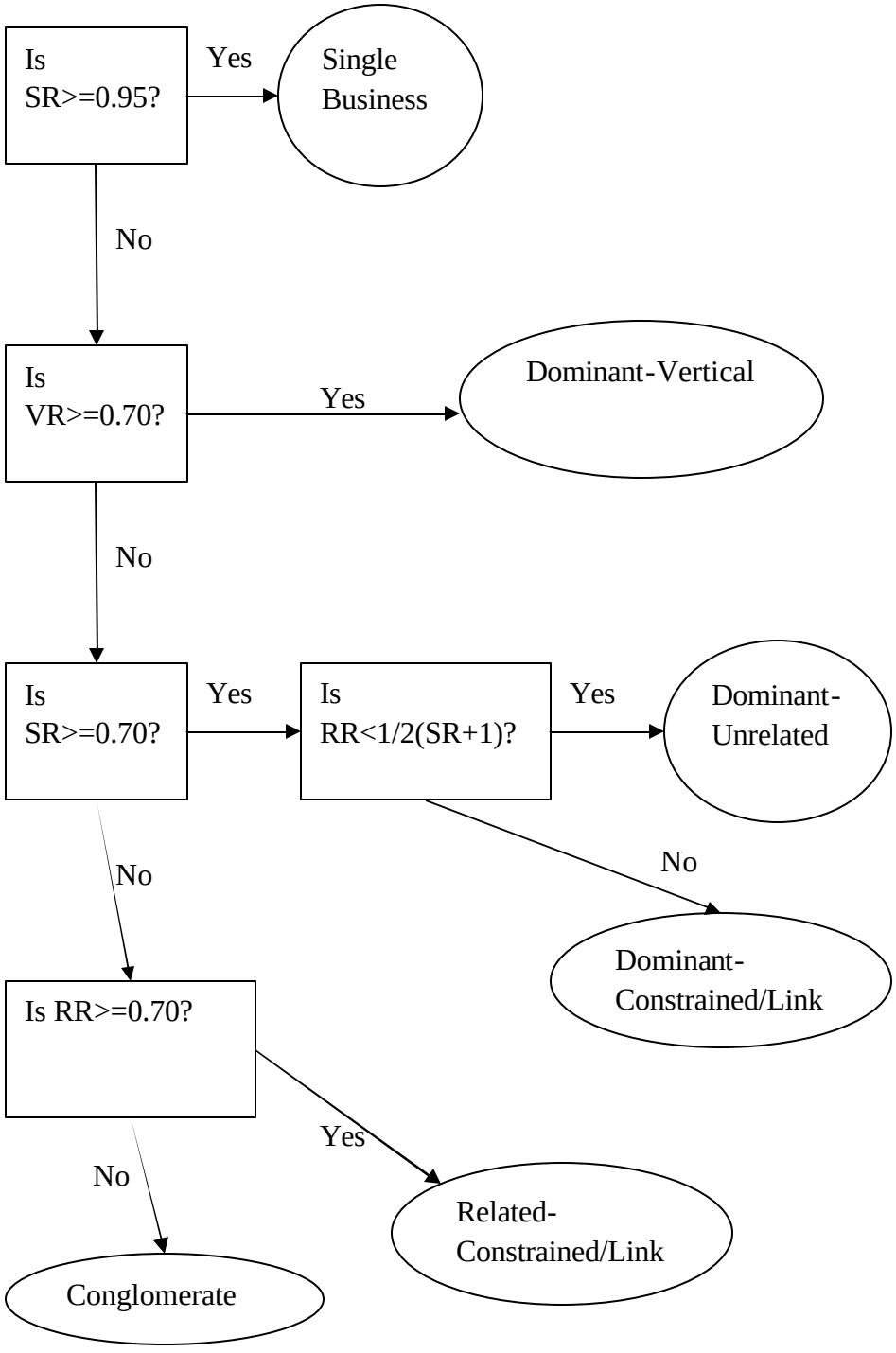
Figure 6-1 Product Flow and Revenue Breakdown for Alcoa in 1969



Notes: Figures in rectangles are the percentages of total revenues attributable to each product area.
Source: Rumelt (1974): 21.

Figure 6-2 Assigning Diversification Categories

SR=Specialization Ratio
RR=Related Ratio
VR=Vertical Ratio



Source: Rumelt (1974): 30.

Figure 6-3 Observed Percentage of Firms in Each Strategic Category (Major Classes)

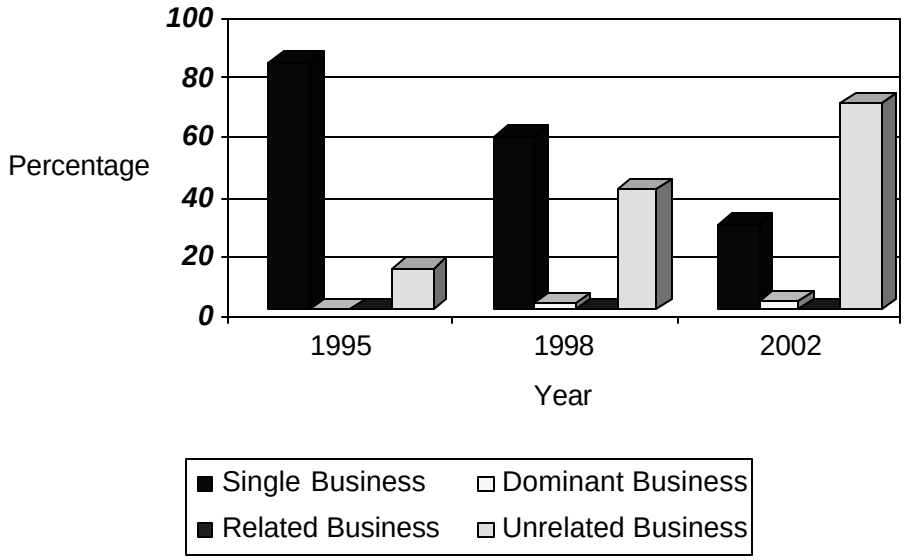


Figure 6-4 Observed Percentage of Firms in Each Strategic Category (Minor Classes)

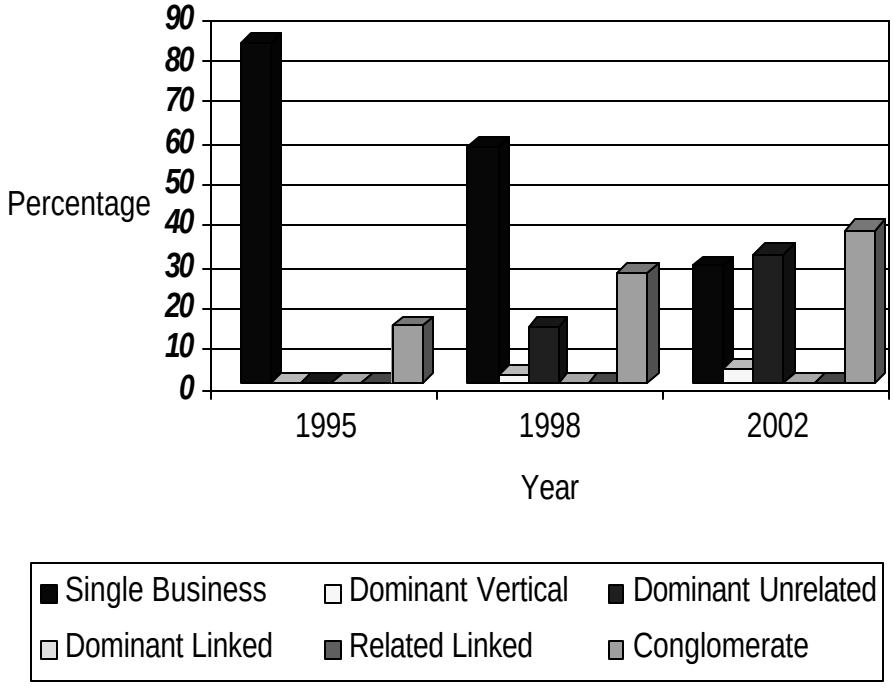
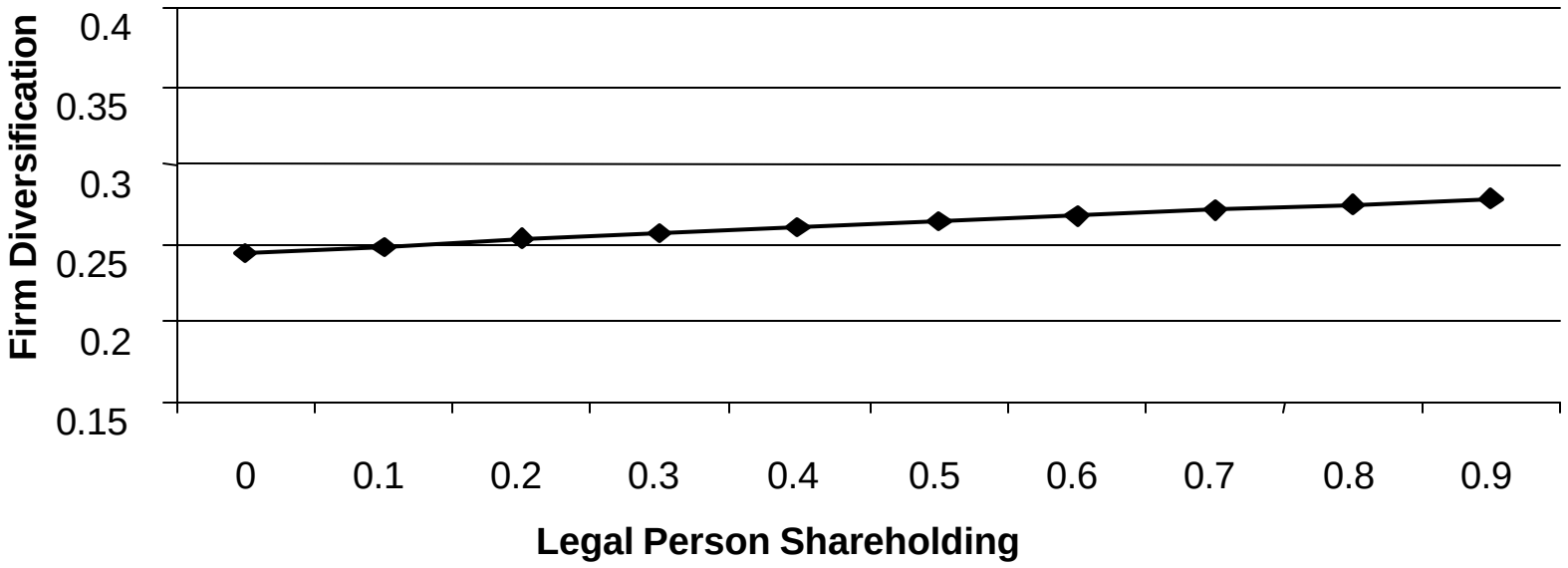
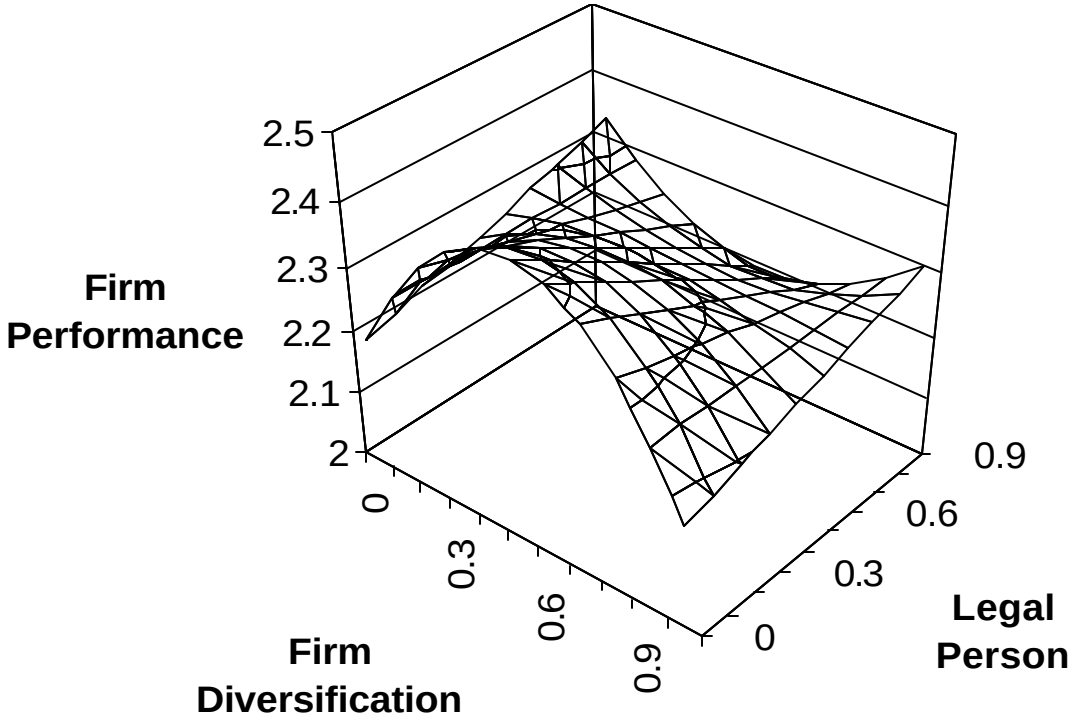


Figure 7-1 Firm Diversification and Legal Person Shareholding (Random Effect)



Note: Firm Diversification is measured by 4-digit herfindahl and calculated while holding values for all other variables at mean levels, for a firm in the industry of miscellaneous, in the province of Liaoning and listed on the Shenzhen Stock Exchange.

Figure 7-2 Firm Performance, Firm Diversification and Legal Person Ownership (Fixed Effect: 1991-2002)



Note: Firm Diversification is measured by 4-digit herfindahl. Firm performance is measured by Tobin's Q and calculated while holding values for all other variables at mean levels, for a firm in the industry of miscellaneous, in the province of Liaoning and listed on the Shenzhen Stock Exchange.

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