An examination of the determinants of performance in relation to the divestiture of State-owned assets in China

A thesis presented in fulfilment of the requirements for the degree of Doctor of Philosophy

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Dedicated to the memory of my mother Jinlai Zhang

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Abstract

Compared with other countries, China's privatization has not been fully successful, as profitability decreased following share issue privatization. This thesis focuses on two features that affect post-privatization performance in China: regional disparity and the inefficiency of board structure.

It is argued that privatization does not mean just the transfer of ownership from the State to the private sector, but the combination of such ownership transfer with deregulation and the injection of domestic and foreign competition, as well as institutional changes. It is shown that performance varies with the extent of regional development proxies in China. In particular, the injection of foreign competition is significantly and positively related to Tobin's Q.

On August 16, 2001, the China Securities Regulatory Commission (CSRC) issued the "Guidelines on Establishing an Independent Director System in Listed Companies" to protect small shareholders from expropriation by dominant shareholders. It has been noted that under the highly concentrated ownership structure and insider-dominated boards of listed firms, independent directors cannot work efficiently as monitors in China. Besides satisfying the government and signalling the market, the main contribution of independent directors is to provide advice to top management. The results of this thesis show that large and diversified firms prefer larger boards with more independent directors; moreover, for large and diversified firms, Tobin's Q increases with board size and board independence.

It is found that Chinese-listed firms exhibit two types of connections provided by independent directors: 43.76% of the independent directors are university scholars or researchers, and 13.88% of them are politically connected. The empirical results show that the relationship between Tobin's Q and the presence of scholars and politically connected outsiders on a board is significantly negative. But it has been found that scholars, commercial bankers, and politically connected independent directors can add value to large firms, highly leveraged firms, and firms without politically connected CEOs, respectively. Moreover, it is found that the recruitment of independent directors does not limit the related party transactions between the listed companies and their controlling shareholders.

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Chapter One

Introduction

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This chapter provides an overview of the three essays contained in this thesis. In particular, it outlines the motivations for studying the effects of regional disparity and the implementation of an independent director system on post-privatization performance in China. The chapter concludes by outlining a framework for the remainder of the thesis.

1.1   Motivation of the Study

Since the United Kingdom's Thatcher government launched its privatization programs in the late 1970s, "privatization" has become a world-wide phenomenon. Numerous studies have examined whether the operating and financial performance of various firms has improved following privatization. Most of these studies document significant performance improvements for newly privatized firms in both developing and developed countries (Boubakri & Cosset, 1998; Boubakri, Cosset & Guedhami, 2001; Boubakri, Cosset & Guedhami, 2005b; D'Souza & Megginson, 1999; D'Souza, Megginson & Nash, 2005; Megginson, Nash & van Randenborgh, 1994).

According to Liu and Gao (1999), the reform process for China's State-owned enterprises (SOEs) officially started with the third Plenum of the eleventh Central Committee of the Communist Party of China (CPC) in December 1978. The reform process has been explained well in Sun and Tong's work (2003), as well as that of Quan and Huyghebaert (2004). In October 1992, after the 14th Party Congress, a new strategy was announced that focused on constructing a socialist market economy and establishing a modern corporate system. Under this strategy, the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) were established in December 1990 and April 1991, respectively, to transform medium and large SOEs into publicly listed companies. Reform entered a new stage at this point – privatizing SOEs through public share offerings, which is known as Share Issue Privatization (SIP). The explicit objectives of privatizing SOEs through SIP include raising capital for the firm, reducing government subsidies to inefficient SOEs, improving efficiency through market discipline and competition, optimizing industrial

structure through efficient allocation of resources, and defining and transferring property rights (Chinese securities market yearbook, 1994).

Studies have examined how privatization affects firm performance by comparing pre- versus post-privatization data for companies divested through public share offerings in China. However, in contrast to other experiences worldwide, profitability declines following SIP (Chen, Firth & Rui, 2000; Jia, Sun & Tong, 2005; Quan & Huyghebaert, 2004; Sun & Tong, 2003; Wang, Xu & Zhu, 2004), which is known as a "profitability puzzle" in China.

This thesis is focused on two features of China's SIP that stand out when compared with SIP in other countries: regional disparity and the insider-controlled board structure. The main goal of this thesis is to:

1. Explore whether China's regional disparity affects the success of privatization.

It is argued that privatization does not mean just the transfer of ownership from the State to the private sector, but the combination of such ownership transfer with deregulation and the injection of domestic and foreign competition, as well as institutional changes - especially law enforcement (Megginson, 2005). Megginson argued that a very important step in effectively privatizing an SOE is known to be "commercialization, which means converting the mission of the enterprises from maximizing social welfare to maximizing economic profits, as well as developing new private-sector operating procedures and policies" (p.73). Moreover, Perotti and Oijen (2001) indicated that a successful

privatization program requires institutional changes that contribute significantly to the strengthening of the legal framework underlying equity investment.

Boubakri, Cosset and Guedhami (2005a) and D'Souza, Megginson and Nash (2005) conducted two similar studies to explore potential determinants of performance improvements in privatized firms of developing and developed countries, respectively. The studies suggested that although post-privatization performance consistently improved across both developed and developing economies, there appear to be several differences in the potential sources of this performance change. For developed countries, internal corporate governance factors, such as the proportion of government and foreign ownership, have the most significant impact on post-privatization performance. However, for developing countries, macro-economic reforms and environmental factors such as economic growth, and institutional factors such as stock market development and the extent of legal protection are more frequently significant determinants of post-privatization performance improvements.

Although China has achieved tremendous economic progress in the last three decades - in spite of its large population and weak economic foundation - with an annual average GDP growth rate of 9.67% from 1978 to 2006[1], the country has one of the widest ranges of natural and geographic conditions, as well as the widest range of natural resources distribution, in the world. It is also one of the countries with the sharpest imbalance in development between different regions. It is therefore interesting to question whether this regional disparity affects the success of SIP in China.

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[1] Source: Ministry of Commerce Website

2. Explore the relationship between the implementation of an independent director system and post-privatization performance in China.

It is suggested that besides normal agency costs, Chinese corporate governance is also suffering from political costs (Xu, Zhu & Lin, 2005), expropriation by controlling share holders (Bai, Liu, Lu, Song &Zhang, 2004), and weak protection for minority shareholders (Chen, 2001). Though there is an extensive literature on board composition and firm performance, there are a limited number of empirical studies on the implementation of an independent director system in China.

On August 16, 2001, the China Securities Regulatory Commission (CSRC) issued the "Guidelines on Establishing an Independent Director System in Listed Companies" (hereafter referred to as the 'Guidelines'). According to the Guidelines, by June 30, 2002, at least two members of the board of directors in each of China's listed firms should have been independent directors[2], and by June 30, 2003 at least one-third of any board should have been composed of independent directors. It is suggested that the fundamental impetus behind the introduction of independent directors in China is to protect small shareholders from expropriation by dominant shareholders (Clarke, 2006).

The Chinese independent director system was initiated by the government, rather than by the listed firms. There are serious concerns about the true effect of the independent director

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[2] "Independent directors of a listed company are those directors who do not hold any post in the company other than the position of director, and who maintain no relationship with the listed company and its major shareholder which might prevent them from making objective independent judgments." (The Guidelines: Article 1.1).

system in China: Will the boards really be more independent after reform? Or will firms just recruit independent directors as window dressing?

1.2 Essay One: Regional disparity and post-privatization performance

The first essay of this thesis seeks to examine the effect of regional disparity on post-privatization performance in China. China has achieved impressive economic growth, but it is one of the countries with the sharpest imbalance of development among different regions. I argue that regional disparity is a significant determinant for the success of SIP in China.

Overall, with the transition of the economy from a planned economic structure to a market-oriented system, the development of profit-maximizing operating procedures is likely to lag behind the ownership transfer. It is fairly easy to change the ownership structure of a firm, but it is quite difficult to change attitudes toward "commercialization" in a short timeframe. It is expected that the firms located in the underdeveloped regions of China have more incentive to depend on the government, and would be more reluctant to join in domestic and international competition. That is, the task of "privatization" is dependent on the level of provincial economic and institutional development; the more developed the provincial economic and institutional environment, the more successful the task.

This study on the regional disparity effect contributes to the argument that a change in ownership alone at the microeconomic level may not be sufficient to guarantee greater

enterprise efficiency after privatization, and the success of privatization needs to be linked to economic growth, the injection of competition and other institutional factors (Boubakri, Cosset & Guedhami, 2005a; Cook & Uchida, 2003).

1.3   Essay Two: Board structure determinants and efficiency

Using a sample of 494 Chinese listed companies that have begun to recruit independent directors in 2002[3], essay two tackles two empirical questions. First, I explore the determinants of board structure in China. Corporate board structure determinants and their impact on firm performance is one of the most fundamental issues in the corporate governance literature. Empirical studies have examined the determinants of board structure but they have mainly focused on US firms. There is scant knowledge of trends in countries which have different institutional and regulatory systems, and there is a particular lack of empirical evidence from China.

Secondly, I explore the outcome of the implementation of an independent director system in China. Outside directors are expected to be tough monitors, as they have incentives to develop reputations as experts in decision making (Fama & Jenson, 1983). However, in China, under the highly concentrated ownership structure and insider-dominated boards of listed firms, independent directors may not work efficiently as monitors. Besides satisfying the government and signalling the market, the main contribution of independent directors

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[3] Chinese firms had little outsider representation on corporate boards before 2002. As the Guidelines precisely define the role of the independent director in China, my sample selected 494 firms that began to appoint independent directors in 2002.

is to provide advice to top management. This study of the Chinese independent director system contributes to the existing literature on the advisory role played by outside directors.

1.4 Essay Three: Independent directors' characteristic and performance

It is interesting to explore the reasons why firms appoint outside directors with different characteristics, and the ways in which some outside directors perform better than others. The third essay of this thesis is focused on the relationship between independent directors' characteristics and firm performance in China. Particularly, I provide answers to the question: "Who are the independent directors in China and how efficient are they?" In addition, I examine whether independent directors monitor top management in terms of related party transactions, which are suggested to be a real means of expropriation in China (Aharony, Wang & Yuan, 2005).

Resource dependence theory indicates that outside directors should provide important resources to firms (Boyd, 1990). I propose that Chinese listed firms recruit independent directors for the resources and/or protection that they can provide, rather than for their ability to monitor top management. Chinese firms prefer such types of connection, due to the importance of *guanxi* in China. It is argued that since *guanxi* goes deep as a governance mechanism in China, Chinese managers will use *guanxi* as a substitute for formal institutional support (Xin & Pearce, 1996).

This study on the relationship between independent directors' characteristics and firm performance in China contributes further to the argument that the insider-dominated system of corporate governance and the pervasiveness of government cannot ensure or support truly independent directors (Hovey & Naughton, 2007).

1.5   Structure of the Thesis

The remainder of this thesis is structured as follows: Chapter 2 provides a review of the related literature which is divided into two major sections. In the first, the extensive literature covering the effect of privatization on the financial and operating performance of firms divested through share offerings is explored. This section includes multi-country studies, single-country studies, and also the studies that have been done on China's SIP. The literature on determinants of post-privatization performance is also reviewed. In the second section, the finance literature which attempts to explain the determinants of board composition and the effect of board structure on firm performance is discussed.

The first essay, which examines the regional disparity effect, is contained in Chapter 3. Chapter 4 contains the second essay on the empirical results of the implementation of an independent director system in China. The third essay investigating the relationship between independent directors' characteristics and firm performance is presented in Chapter 5. This chapter also examines whether the recruitment of independent directors can limit related party transactions between the listed firms and their controlling shareholders. Chapter 6 provides a conclusion on the results that are presented in this thesis, and discusses potential topics for future research.

Chapter Two

Literature Review

2.1   Introduction

An extensive literature on post-privatization performance is covered in this chapter. I divide the literature review into two major sections. In the first section, the effect of privatization on firm performance is discussed. Multi-country studies, single-country studies, China's SIP, and the determinants of post-privatization performance are included in this section.

In the second section, I review the literature on the determinants of board composition and the effect of board structure on firm performance. The determinants of board structure can be divided into three groups (Boone, Field, Karpoff & Raheja, 2007; Guest, 2008): the "scale and complexity of operations hypothesis"; the "monitoring costs and private benefits hypothesis"; and the "CEO influence hypothesis". Studies looking at the effect of board structure on firm performance generally find that keeping the size of the board small can help improve a firm's performance (Andrés, Azofra & López, 2005; Conyon & Peck, 1998; Eisenberg, Sundgren & Wells, 1998; Loderer & Peyer, 2002; Mak & Yuanto, 2005; Yermack, 1996). The literature has examined the relationship between board independence and firm performance, but many studies failed to yield results in support of the proposition that a high degree of board independence has a positive effect on firm performance

(Agrawal & Knoeber, 1996; Bhagat & Black, 2002; Hermalin & Weisbach, 1991; Klein, 1998; Mehran, 1995).

2.2 Share Issue Privatization (SIP)

In this section, I review the extensive literature on the post-privatization performance of firms divested through share offerings, the determinants of post-privatization performance, and the studies on China's SIP.

2.2.1 Post-privatization performance following SIP

Guriev and Megginson (2007) suggested that private ownership strengthens the incentive for profit maximization and therefore leads to increased productive and allocative efficiency. The known benefits of privatization are extensive, including a reduction in government subsidies, improved incentives, and better access to capital (Perotti & Oijen, 2001). Moreover, Sader (1995) argued that transferring ownership to the private sector may lead to an inflow of foreign capital and technological transfers and may also increase the integration of local companies into international competition.

Researchers have examined the effect of privatization on the financial and operating performance of firms divested through public share offerings. Findings indicate that newly privatized firms normally experience significant improvements in their performance following SIP. These studies include both multi-country studies and single-country studies.

2.2.1.1 Multi-country studies

Studies using multi-country samples generally documented significant improvements in output, operating efficiency, profitability, and capital spending as well as significant decreases in leverage for newly privatized firms.

Megginson, Nash and van Randenborgh (1994) compared the pre- and post-privatization performance of 61 firms divested through going public from 1961 to 1989. The firms were from 18 countries (6 developing and 12 industrialized) and 32 different industries. They found that privatization was positively related to profitability (measured by return on sales, return on assets, and return on equity), operating efficiency (measured by real sales to the number of employees, and net income to the number of employees), and capital investment spending (measured by capital expenditures divided by sales, and capital expenditures divided by total assets); and negatively related to financial leverage (total debt to total assets) and employment. They first computed performance proxies for every firm over a 7 year period - 3 years before through 3 years after privatization. They calculated the mean of each variable for each firm over the pre- and post-privatization windows. For all firms, the year of privatization was excluded from the mean calculations. Having computed the pre- and post-privatization means, the Wilcoxon signed-rank test was used as the principal method to discover whether the median difference in variable values between the pre- and post-privatization samples was significant. Finally, a proportion test was used to determine whether the proportion of firms experiencing changes in a given direction was greater than would be expected by chance. This methodology used in Megginson, Nash and van Randenborgh (1994) was widely followed and referred to as the MNR methodology.

Boubakri and Cosset (1998) examined changes in the financial and operating performance of 79 companies from 21 developing countries that experienced full or partial privatization during the period from 1980 to 1992. They used both accounting performance measures adjusted for market effects and unadjusted accounting performance measures. Utilizing the MNR methodology, they found significant increases in profitability, operating efficiency, capital investment spending, output, and dividends after privatization, as well as a decline in leverage which was only significant when using the unadjusted measure.

D'Souza and Megginson (1999) examined the pre- versus post-privatization performance of 85 companies from 13 developing and 15 developed countries during the period from 1990 to 1996. They documented significant post-privatization increases in profitability, real sales, operating efficiency, and dividend, and significant decreases in leverage. Moreover, they found insignificant decreases in capital investment ratios and employment levels. They also divided the full sample into several subsamples based on whether the firm was headquartered in a developed or developing country, whether the government retained majority voting control, whether the privatized firm operated in a competitive or a regulated industry, whether there was turnover of at least 50% in the firm's board of directors after privatization, and whether the firm's CEO was retained or replaced after privatization. It was found that output, operating efficiency, and dividend payout increased significantly for every subsample. Moreover, it was shown that performance improved more when governments relinquished (versus retained) voting control and for regulated (versus competitive) industries. Moreover, post-privatization employment declined more in developed than in developing countries.

Using a sample of 201 firms headquartered in 32 developing countries, Boubakri, Cosset and Guedhami (2001) found significant increases in both the unadjusted and the market-adjusted profitability, efficiency, investment, and output of firms after privatization. They also carried out subsample analyses involving firms privatized before trade (stock market) liberalization versus those privatized after trade (stock market) liberalization; firms privatized in countries with a high index of economic freedom (i.e., friendlier environment) and those privatized in countries with a lower index of economic freedom (more restrictive environment); revenue versus control privatization; firms with foreign ownership versus firms with no foreign ownership; firms that changed their CEO versus firms that did not change their CEO; and firms in stronger legal and institutional environments versus firms privatized in weaker legal and institutional environments. The results demonstrated that firms privatized after trade liberalization experienced better gains in profitability, efficiency and output than firms privatized before trade liberalization. Moreover, firms privatized after stock market liberalization had better gains in efficiency and output than those privatized before stock market liberalization.

Using MNR methodology and a matched pair methodology, D'Souza, Megginson and Nash (2005) examined the effect of privatization on a sample of 129 SIPs from 23 developed (OECD) countries in the time period from 1961 to 1999. The results added to empirical evidence that firms become more profitable and efficient after privatization. Boubakri, Cosset, and Guedhami (2005a) examined the impact of privatization on the operating performance of newly privatized firms by utilizing a sample of 230 companies headquartered in 32 developing countries. Following the MNR methodology, they found significant increases in profitability, efficiency, investment, and output.

Though the majority of the multi-country studies documented significant performance improvements following SIP, there were studies that failed to find significant profitability improvements. Boubakri and Cosset (1999) examined the pre- versus post-privatization financial and operating performance of 16 African firms privatised through public share offerings during the period from 1989 to 1996. Following the methodology used in Megginson, Nash and van Randenborgh (1994) and Boubakri and Cosset (1998) as well as D'Souza and Megginson (1999), they found a significant increase in capital spending, but only insignificant changes in profitability, efficiency, output, and leverage.

Dewenter and Malatesta (2001) compared the pre- versus post-privatization performance of 63 large companies divested during the period from 1981 to 1994. They found the companies owned by governments were significantly less profitable than those held privately, at least to the extent that profitability and efficiency could be equated. However, they did not find much evidence that privatization itself increased firm profitability. Though privatization was associated with improved profitability, the improvement largely occurred during the three years just before privatization. Most of the accounting measures of profitability were actually lower during the five years following privatization than during the three years before privatization. The authors argued that the performance improvements may have been due to restructuring changes the firms implemented before privatization.

Aussenegg and Jelic (2006) examined the operating performance of privatized firms in Hungary, Poland, and the Czech Republic between 1990 and 1998. Around 49% of the sample companies were privatized through public sales (IPOs) and 51% though private

sales. They found the privatized firms in their sample did not experience significant increases in profitability, efficiency, capital investments, or output until six years after privatization. Among the sample countries, Hungary performed better in terms of profitability, but demonstrated significantly reduced output following privatization. Compared to Hungary and Poland, Czech firms experienced a significant increase in leverage along with lower reduction in (adjusted) output.

Overall, the multi-country studies showed that, though not always successful, privatization improves the financial and operating performance of newly privatized firms. The empirical results support the proposition that privately owned firms are more efficient and more profitable than State-owned firms.

2.2.1.2   Single-country studies

Along with the research involving multi-country samples, single-country studies also provide evidence of improvements in performance following SIP, though it is not significant in all countries.

Using data for 69 Egyptian firms that were privatized from 1994 to 1998, Omran (2001) evaluated their financial and operating performance and explored whether performance changes were related to the new ownership structure after privatization. The sample firms were classified into four categories based on the process the government adopted to implement the privatization program: 33 firms sold as majority stake(50% ownership or greater) in the stock market, 18 firms sold as minority stake (less than 50% ownership) in

the stock market, 12 firms sold to employees' shareholder associations (ESA) and 6 firms sold to anchor investors. Following the methodology of Megginson, Nash and van Randenborgh (1994), Boubakri and Cosset (1998), and D'Souza and Megginson (1999), he found significant improvements in profitability, operating efficiency, capital expenditure, and dividends, and significant decreases in employment and leverage in all sub-samples. Moreover, the empirical results showed that firms sold to ESA and anchor investors demonstrated better performance than other types of privatization, while majority sale appeared to work better than minority sale.

Boardman, Laurin and Vining (2002) analyzed the operating and stock price performance of all the Canadian SIPs that took place between 1985 and 1996. They compared profit (net income), profitability, total product (sales), efficiency/productivity, capital investment, leverage, and dividend payments during the three-year period prior to privatization to the same variables in the three-year period after privatization. It was found that privatization significantly improved the operating and financial performance of these Canadian companies. In particular, net income, profitability, and efficiency were significantly improved following privatization.

Sun and Tong (2002) compared the financial and operating performance of a sample of 24 Malaysian firms before and after privatization during the period from 1983 to 1997. They found that absolute levels of total profits were increased three-fold after privatization. Real sales and dividend payouts were double, and leverage reduced significantly. These results were robust across various sub-samples. They confirmed that though not as dramatic as the changes documented in studies of some other countries, the Malaysian privatization

program has been successful. Moreover, the authors examined factors that may explain the observed performance changes. It was found that the presence of institutional investors had a positive relationship with firm performance, while large individual shareholders and changes in key management had a negative impact on firm performance.

Using data on 341 manufacturing and service sector companies that were partially divested from 1991 to 1998, Gupta (2005) investigated the effect of partial privatization on firm performance in India. The results showed that both the level and the growth rate of profitability and labour productivity improved significantly following partial privatization. It was found that a 10% decrease in government ownership increased annual sales and profits by 20% and 13%, respectively, and the average product of labour and returns to labour increased by 5% and 6%, respectively. He argued that though management control was not transferred to private owners in partial privatization, the stock market could play a positive role in monitoring and rewarding managerial performance.

Feng, Sun and Tong (2004) studied the pre and post- privatization performance of 30 Singapore government-linked companies (GLCs) in the period 1964 to 1998. The empirical results showed that real net income and real sales increased following privatization, but there were no significant changes in return on sales, efficiency, or leverage measures. When controlling for GDP growth, no increase in real net income or real sales was observed. Instead, the leverage level of the privatized GLCs was found to decline. The authors argued that the results were consistent with some findings that government ownership is not necessarily associated with bad performance. Singapore's government-owned enterprises are comparable to privately run enterprises in efficiency,

mainly due to the openness of the Singapore economy to intense foreign competition, and to its well-functioning markets.

Farinós, Emilio, Garcia and Ana (2006) investigated the operating and stock market performance of Spanish SOEs privatized through SIPs from 1990 to 2001. Employing a similar methodology to Megginson, Nash and van Randenborgh (1994), they tested whether privatization increased firm profitability, operating performance, capital investment spending, and output, while decreasing employment and leverage. It was found that Spanish SOEs showed significant increases in income efficiency and real sales, but did not become more profitable after being privatized. The authors hypothesized that Spanish privatized SOEs were more interested in growing and improving efficiency than in improving their profitability due to their desire to reduce the risk of a foreign hostile takeover.

Thus, the single-country studies on post-privatization performance suggested that generally privatization "works", in the sense that privatized firms almost always become more efficient, more profitable, increase their capital investment spending, and become financially healthier (Megginson & Netter, 1997).

2.2.2   Determinates of post-privatization performance

As there is empirical evidence that privatization improves the performance of divested firms, the next logical question is, "Why do such performance improvements occur?" Research investigating the sources of post-privatization performance improvements has

found that ownership structure and top management significantly affect post-privatization performance.

2.2.2.1   Control relinquishment by the government

Boycko, Shleifer and Vishny (1995) suggested that the inefficiency of State firms results from their pursuit of objectives specified by politicians, such as employment, and predicted efficiency gains from privatization only if control rights pass from the government to the private sector. They argued that politicians would be less likely to directly interfere in the management of firms with a higher percentage of shares sold to private stockholders. However, Perotti (1995) argued that after privatization, a manager's incentive to restructure the privatized firm would be affected by uncertainty about the government's commitment to privatization, and therefore, the government needs to signal its commitment to capitalism by convincing managers it will not expropriate profits from firms. He argued that governments can signal commitment by initially selling a small portion of stake in the firm, because selling only a small portion indicates the government is willing to bear residual risk. Although there are theoretical debates over whether control privatization is better than revenue privatization, most empirical studies document that relinquishment of control by the government yields higher performance improvements after privatization.

Using a sample of 201 firms headquartered in 32 developing countries, Boubakri, Cosset and Guedhami (2001) investigated potential sources of post-privatization performance improvements. They provided evidence that relinquishment of control by the government

is a key determinant of profitability and efficiency improvements, as well as increased output following privatization. They asserted that this result is consistent with the argument that government control is the source of inefficiency at the firm level.

D'Souza, Megginson and Nash (2001) suggested that relinquished control provides privatized firms greater entrepreneurial opportunities. They explored the causes of performance improvements following privatization by utilizing a sample of 118 firms privatized via public share offerings between 1961 and 1995. It was found that ownership was the most significant determinant of change in post-privatization performance. In particular, they found that real output significantly increased when State ownership decreased.

Boubakri, Cosset and Guedhami (2005a) argued that given the prevailing economic and institutional environment, governments may choose to relinquish control of privatized firms or keep higher stakes in them. On the one hand, governments could be reluctant to relinquish State control at the early exploratory stages of the privatization program due to both social and political costs and the fear of losing revenues. Specifically, they might be reluctant to sell higher stakes in large firms and/or in sectors that are believed to be economically and politically strategic. On the other hand, however, governments might be willing to relinquish control in the early stages in order to attract private investors. Utilizing a sample of 230 firms headquartered in 32 developing countries over the period from 1980 to 1997, the authors found that on average, privatization resulted in relinquishing control to local institutions, individuals, and foreign investors. It was shown that relinquishment of control by the government was one of the most important

determinants of performance changes. In particular, relinquishment of control by the government yielded higher profitability, efficiency, and output changes after privatization.

Employing a pooled cross-sectional time series model, Aussenegg and Jelic (2006) examined the determinants of change in the operating performance of privatized firms in Hungary, Poland, and the Czech Republic. Firms with a State ownership of 10% or less after privatization were defined as fully privatized. It was found that fully privatized firms experienced better performance in terms of output. Loc, Lanjouw, and Lensink (2006) examined the impact of corporate governance on firm performance by using data for 121 SOEs in Vietnam. It was documented that firms with residual State ownership of less than 30% had greater improvements in profitability than firms with residual State ownership greater than or equal to 30%.

2.2.2.2   Foreign ownership

Research has found that the presence of foreign investors also affects the degree of performance improvement in newly divested firms. It is argued that foreign investors generally require high standards of information disclosure, provide managerial and technical expertise, bring new funds to firms, and maintain strict control of managers' actions due to concern for their reputations (D'Souza, Megginson & Nash, 2005; Dyck, 2000; Shirley & Walsh, 2001).

Frydman, Gray, Hessel and Rapaczynski (1999) compared the performance of privatized firms in the transition economies of Central Europe. They found privatization was effective

in enhancing the revenue and productivity performance of firms that had given control to outsider-owners, but produced no significant effect in firms which remained under the control of insiders. It was estimated that privatization added over 12 percentage points to the annual revenue growth of those firms privatized to foreign investors. The authors argued that foreign strategic investors have an instant advantage over other owners in the areas of financial resources, managerial know-how, and corporate governance expertise.

D'Souza, Megginson and Nash (2001) found that foreign ownership contributed to stronger efficiency improvements after privatization. They compared firms with foreign ownership after privatization and firms with no foreign ownership after privatization. The results showed that firms with foreign ownership had better gains in profitability, efficiency, and output. Moreover, their regression results indicated that a one percentage point increase in foreign ownership led to a 0.67% increase in post-privatization sales. In addition, there was a significant negative relationship between foreign ownership and post-privatization employment levels. It was shown that a one percentage point increase in foreign ownership led to a 1.74% decrease in employment.

D'Souza, Megginson and Nash (2005a) examined the effect of privatization on a sample of 129 SIPs from 23 developed (OECD) countries in the period from 1961 to 1999. Their multi-national, multi-industry sample offered unique evidence of potential determinants of efficiency improvements following privatizations in developed countries. They found a significantly negative relationship between foreign ownership and post-privatization employment levels. They argued that foreign owners should be more likely to reduce jobs

if the privatized firms are truly overstaffed because they are probably less affected by local political and social concerns.

Using a sample of 95 newly privatized firms that went public through stock markets in four Middle East and North Africa countries, Ben, Ghazouani, and Omran (2007) identified a significant increase in profitability and operating efficiency, and a significant decline in employment and leverage. It was found that profitability change was positively related to foreign ownership. The authors argued that this result confirmed the theoretical contention that foreign investors influence a firm's productivity through their monitoring role.

2.2.2.3   Changes in top management

D'Souza, Megginson and Nash (2007) suggested that privatization may affect corporate governance by introducing changes in the privatized firm's top management. Privatized firms may replace the often politically appointed manager of the SOE with an experienced businessperson, because the original managers may lack the appropriate management skills to effectively guide the newly privatized firm (Lopez-de-Silanes, 1997).

Megginson, Nash and van Randenborgh (1994) divided their sample of firms with board of director data into two groups—one that experienced 50% or greater turnover in directors after privatization and a second with a less than 50% change. It was found that the first group experienced significant increases in profitability, output per employee, capital investment spending, and dividend payout, as well as a significant decrease in leverage after privatization. However, the low director change group only experienced significant

increases in output per employee and dividend payout. These results indicated that the greater the change in a firm's control structure, the greater the improvement in its operating performance after privatization.

Lopez-de-Silanes (1997) examined whether a change of CEO and changes in other members of the management team would affect the performance of privatized firms. In his sample, 20.36% of the CEOs were fired or asked to resign before privatization, and 16.69% of the sample firms changed other members of the management team. It was found that the CEO change was associated with statistically significantly higher Tobin's Q.

D'Souza, Megginson and Nash (2001) explored the causes of performance improvements following privatization by utilizing a sample of 118 firms. They divided the sample into firms that had a new CEO after privatization and firms whose existing CEO continued after privatization. It was found that efficiency and capital expenditures increased significantly and leverage decreased significantly only for the group of firms that had a new CEO.

Gupta (2005) investigated the effect of partial privatization on firm performance in India. Particularly, he investigated the effect of CEO change on firm performance. It was found that between 1990 and 2000, on average 30.9% of his sample firms experienced a CEO turnover and 67.6% experienced a change in board composition each year. He also found that CEO turnover led to a significant improvement in performance in partially privatized firms. He suggested that candidates for senior management and board positions in Indian SOEs are usually selected by a government department, but partially privatized firms are able to attract better managers.

Using a sample of 161 firms privatized from 1961 to 1999, D'Souza, Megginson and Nash (2007) examined whether restructuring/governance changes had contributed to improvements in post-privatization operating performance. They suggested that governments may choose to restructure firms through corporate governance changes prior to privatization, which included changes in upper management. They found that profitability increased significantly for firms with greater than 50% change in board of directors, while it decreased, insignificantly, for firms with less than 50% change[4].

2.2.3 "Profitability puzzle" in china

The studies in this section examined how privatization affects firm performance by comparing the pre- versus post-privatization data for companies divested through public share offerings in China. Compared with other countries, China's privatization has not been fully successful, as profitability there decreased following SIP, leading to its current status as China's "profitability puzzle".

Chen, Firth and Rui (2000) compared the pre- and post-financial performance of 735 companies that experienced privatization from 1991 to 1997 in China. Following the methodology of Megginson, Nash and van Randenborgh (1994), and Boubakri and Cosset (1998), they found there was a decline in profitability and asset utilization in the five years after privatization. Further analysis showed that firms with foreign ownership, high levels of legal entity share ownership, and high levels of individual share ownership also experienced poor post-performance following privatization. They argued that

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[4] Literature on the relationship between post-privatization performance and macro level factors is presented in Essay one.

privatizations have been unsuccessful in terms of profitability and efficiency in China because the State continues to hold substantial shareholdings in listed firms, and State shareholders are not fully pursuing policies designed to maximise profitability and efficiency because they have various social and political objectives. It was suggested that another reason the firms were not achieving the full benefit of privatization was the State's frequent control over the make-up of the board of directors. In addition, the senior and junior management of privatized SOEs are typically made up of the same individuals as pre-privatization.

Sun and Tong (2003) evaluated the change in performance of 634 Chinese SOEs listed on the Shanghai and Shenzhen stock exchanges before and after SIP in the period from 1994 to 1998. Profitability change was measured in two ways. First, they looked at the absolute change in real net profit of the SIP firms from before privatization to after privatization. Specifically, they calculated the real net profit by adjusting a firm's annual net income according to the annual inflation rate. Secondly, the return on sales (ROS), rather than return on assets (ROA) and return on equity (ROE), was used to avoid the problem of a mechanical increase in equity through primary issues. They found signs of increases in the earnings, real sales, and employee productivity of the SOEs after SIP, but the two profitability measures did not show any improvement.

Using a panel of the pre- and post-listing data of 793 firms privatized through public offerings between January 1994 and June 2000, Wang, Xu and Zhu (2004) explored whether SIP was an effective means of reforming SOEs in China. ROA and ROS were used as the performance measures. It was found that the overall operating performance of

China's listed firms was significantly lower than the pre-listing level. The authors argued that this deterioration may be attributable to the window-dressing of pre-listing accounting figures. That is, the firms may have window-dressed their accounting figures prior to going public, and may have also timed the offerings to coincide with periods of unusually good performance or favourable market valuations. Consequently, this over-stated pre-privatization performance may have resulted in a superficial decline to post-privatization performance. Moreover, the parent SOEs may also have expropriated the value of the listed companies after listing.

Using a sample of 429 non-financial firms listed on the Shanghai stock exchange that experienced partial privatization over the period from 1994 to 2002, Quan and Huyghebaert (2004) found the post-privatization performance of partially privatized Chinese SOEs had deteriorated. The empirical results showed that all profitability measurements declined significantly from the year before to five years after privatization, with the mean ROS dropping from 13.09% to 7.57%, mean ROA from 8.53% to 3.16% and mean ROE from 20.28% to 7.24%.

Jia, Sun and Tong (2005) studied the partial privatization of 53 Chinese SOEs listed on the Hong Kong Exchange over the period from July 1993 to December 2002. Using inflation-adjusted real net profit (RNP) and ROS as measures of profitability, they compared the three-year profitability averages of the SOEs before and after privatization. It was documented that the median RNP changed from 0.56 before privatization to 0.95 after privatization. However, when measured by ROS, profitability tended to decline after

privatization (the median ROS dropped from 0.10 before privatization to 0.09 after privatization).

This established the fact that newly privatized firms' profitability tends to decline following SIP in China. However, further analysis using the matched sample approach suggested that decreases in the profitability of divested firms were lower than the matched samples.

Wei, Varela, Hassan and D'Souza (2003) compared the pre- and post-privatization financial and operating performance of 208 firms that were privatized in China during the period from 1990 to 1997. Using the same the matched pair methodology as D'Souza and Megginson (1999), they compared the three-year average post-privatization financial and operating performance measures with the same three-year average pre-privatization performance measures. Moreover, they used the Wilcoxon statistic to test whether the median changes were statistically significant, and the Kruskal-Wallis test to examine for significant differences in performance between the two independent sub-samples - control and no-control firms (in control firms, the voting control had been passed to private investors after privatization, while no-control firms were still in the State's hands). Consistent with most of the privatization literature, the authors found significant improvements in real output, real assets, and sales efficiency, and significant declines in leverage following privatization, but did not find any significant change in profitability. However, they argued that the overall trend toward declining profits in China may have biased the results. They obtained a matched sub-sample of 41 fully State-owned and 41 privatized firms for the period from 1994 to 1999 to compare profitability and net income.

It was found that, compared to the fully State-owned firms, the profitability (measured as net income divided by sales) of the privatized firms improved significantly.

Huang and Song (2005) compared the financial and operating performance for 44 of China's SOEs listed on the Hong Kong stock exchange (referred to as H-firms) before and after going public. Employing the MNR methodology and panel analysis, they found that ROS, ROA, ROE, and net income efficiency all decreased after going public. Specifically, the decreases in ROA and ROE were significant at the 1% level, according to the Wilcoxon signed rank test and the proportion test. However, further analysis showed that the decline of the H-firms was smaller than that of control firms listed around the same period in Hong Kong, many of which had businesses in China similar to those of the H-firms. The authors argued that IPO has a negative effect on firm performance, and privatization has a positive effect on firm performance. Thus, although the overall effect of combined IPO and privatization is negative, the positive privatization effect did somewhat offset the negative IPO effect.

Using a matched sample approach, Jiang, Yue and Zhao (2006) reported that SIP does improve firm profitability in China, no matter the SIP process is a control privatization or a revenue privatization. To evaluate the effects of SIP on firm profitability, they examined the difference in profitability change throughout the SIP year between 149 SIP firms in the manufacturing industry and matched SOE firms that had not gone through the SIP process during the period from 1998 to 2003. They found that the SOE sample experienced a decline in ROS of 7.4%, but the SIP sample only experienced a decline of 4.1%. That is, SIP improved firm profitability by a significant 2.5% compared with the matched sample.

They argued that in China, only SOEs with the highest profitability are chosen to privatize. After SIP, the high profitability reverses to a more average level, and thus SIP firms will demonstrate negative profitability changes. Therefore, profitability improvement has not been found following privatization because the mean reversion nature of corporate profitability has not been considered.

Overall, the literature gives several possible explanations for profitability decline following SIP in China:

(1) The inefficient ownership structure, in which the State continues to manage substantial shareholdings in listed firms. It is suggested that State shareholders are not fully pursuing policies designed to maximise profitability and efficiency because they have various social and political objectives (e.g., Chen, Firth & Rui, 2006; Sun & Tong, 2003).

(2) An inefficient board structure in which the State often controls the make-up of the board of directors, as the top management of privatized SOEs are typically nominated by the government and are kept the same as pre-privatization (Chen, Firth & Rui, 2006). Fan, Wong and Zhang (2007) found that firms with politically connected CEOs under-performed those without politically connected CEOs by almost 18% based on three-year post-IPO stock returns; they also had poorer three-year post-IPO earnings growth, sales growth, and change in returns on sales.

(3) Firms may window-dress their accounting figures prior to going public, and listed firms also be expropriated by their parent companies after going public(Wang, Xu & Zhu, 2004).

(4) China's SIP is almost all IPOs; the negative IPO effect is greater than the positive privatization effect. The overall negative effect of IPO and privatization leads to a decline in post-privatization performance (Huang & Song, 2005).

(5) In China, only SOEs with the highest profitability are chosen to be privatized. The high profitability reverses to the average level so that SIP firms will have negative profitability changes after SIP (Jiang, Yue & Zhao, 2006).

2.3   Board structure and firm performance

2.3.1   The determinants of board structure

Two determinants - board size and board composition - are becoming more and more important in the corporate governance literature. It is suggested that boards have two main functions: advising and monitoring. Theoretically, the board structure is driven by the trade-off between the benefits and the costs of having inside and outside directors on the board (Adams & Ferreira, 2007; Raheja, 2005).

As an advisor, inside directors are an important source of firm-specific information which can contribute to efficient decision-making, but they may need to be prodded to reveal their insider information, due to the benefits inherent in keeping such knowledge private (Raheja, 2005). In contrast, outside directors are capable of providing a CEO with advice and resources for dealing with specialized decision making, especially those who are experts in capital markets, corporate law, or relevant technologies (Fama & Jensen, 1983). But outside directors are always less informed about firm-specific problems, because CEOs face a trade-off in disclosing information to outside directors (Adams & Ferreira, 2007).

As monitors, the directors ensure that top management pursues shareholder interests (Guest, 2008). Fama and Jenson (1983) suggested that outside directors carry out tasks that reduce the possibility of serious agency problems between internal managers and residual claimants. They are motivated to perform their tasks and do not collude with managers to expropriate residual claimants because it is in their interest to develop reputations as experts in decision making. In contrast, inside directors' careers are more dependent on the CEOs, so they have more incentive to side with them, rather than to act as monitors of their CEO's actions (Adams & Ferreira, 2007). Therefore, outside directors are generally considered to be more effective monitors than inside directors.

2.3.1.1 Scale and complexity of operations hypothesis

Fama and Jensen (1983) proposed that the way a firm is organized depends on the scope and complexity of its production process, with larger or more complex processes leading to larger and more hierarchical firms. Consistent with this theory, empirical studies have shown that board structure is determined by the scale and complexity of a firm's operations. That is, firms with diversified business segments, longer operating histories, and complex operating and financial structures prefer larger boards and more outside directors.

2.3.1.1.1 Firm size

Denis and Sarin (1999) examined the ownership structure and board composition of a sample of 583 firms over the ten-year period between 1983 and 1992. They estimated cross-sectional regressions relating ownership and board characteristics to firm-specific

and owner-specific variables. It was found that larger firms were characterized by larger boards and a greater proportion of outsiders on the board. In addition, firms with higher leverage were characterized by larger boards with a larger percentage of independent outsiders.

Lehn, Sukesh and Zhao (2005) suggested that the size and structure of boards of directors are determined by tradeoffs involving the incremental information that directors bring to their boards versus the incremental coordination costs of adding a director to a board. Using a sample of 81 publicly traded US firms that survived over the period from 1935 through 2000, it was found that the median board size averaged 11 in 1935, peaked at 15 in 1960, and fell back to 11 in 2000. In addition, insider representation on boards fell over time, starting at 43% of directors in 1935, and finishing at 13% in 2000. Moreover, it was found that more than 60% of the variation in board size could be explained by measures for firm size; that is, board size increased with firm size.

Hillier and McColgan (2006) examined the changing nature of corporate board structures in the UK following the publication of the Cadbury Report (1992). It was found that companies responded to the Cadbury Report (1992) by installing more outside directors on their boards. It was further shown that board size and outside director representation were positively related to firm size as measured by the book value of company assets. The authors indicated their results were consistent with the argument that larger firms require larger boards with a greater number of non-executive directors due to the greater skill and informational capacities required in running such companies (Raheja, 2005).

Using hand-collected data from a panel of 1,019 firms that went public between 1988 and 1992, Boone et al. (2007) examined the development of corporate boards during the first 10 years after their IPO. They found the IPO firms added an average of 0.13 board members per year during the 10 years after going public. Outsiders made up 56% of the average board of these IPO firms during listing, and outsiders continued to be added to the board so that on average, 69% of the members were outside directors 10 years later. Several persistent patterns were found to be robust to alternate model specifications. In particular, larger firms (measured as the natural log of the market value of equity) had larger and more independent boards.

Linck, Netter and Yang (2008) examined corporate board structure trends and determinants using a comprehensive sample of nearly 7,000 firms covering a full range of sizes, ages, and industries from 1990 to 2004. It was found that board size fell for large firms in the 1990s, although this trend was reversed after the implementation of the Sarbanes-Oxley Act (SOX) (2002), while for small and medium-sized firms, board size was relatively flat. The authors also found that board independence increased substantially from pre- to post-SOX. Moreover, the sample firms showed a downward trend in the percentage of insiders on their boards. Small firms had the highest percentage of board insiders in 1990. This number decreased from about 46% in 1990 to about 34% in 2004. For large firms, this ratio dropped from about 28% in 1990 to 24% in 2004. The regression results showed that firm size was positively and significantly related to board size and the proportion of outside directors on boards. This result was consistent with the authors' hypothesis that board size and independence increase in firm complexity and advising benefits.

Coles, Daniel and Naveen (2008) suggested that complex firms - such as those that are diversified across industries, are large in size, or have high leverage - are likely to have greater advising requirements. They predicted that complex firms may benefit from a larger board of directors, and in particular, from outside directors who possess relevant experience and expertise. The authors computed a factor score based on the number of business segments, log (sales), and leverage. It was argued that firms with greater advising requirements require more directors on the board, specifically more outsiders. It was found that firms which are diversified, large, and high-debt had 18% bigger boards with 26% more outsiders.

Guest (2008) argued that the board's advisory role is to provide the CEO with advice and access to information and resources, and that this requirement for advice escalates with increases in firm scale and complexity. Using a large sample of UK firms from 1981 to 2002, he examined the trends and determinants of board size and composition. Firm size was found to be significantly and positively related to board size and the proportion of outside directors, providing strong support for the hypothesis that larger firms have larger boards and a higher proportion of outside directors to meet their greater advising needs.

2.3.1.1.2 Business diversification

Boone et al. (2007) argued that more diverse firms can increase their demands for new board members, because such firms need to recruit more directors to monitor their wider scope of operations. They hypothesized that board size and the proportion of outside directors on a board are positively related the number of business segments of a firm, and

this was strongly supported by their empirical results. The number of business segments was positively related to board size and the proportion of independent outsiders on boards..

Linck, Netter and Yang (2008) indicated that firms with disparate businesses and geographically dispersed operations should benefit more from recruiting a greater number of outside directors with a range of expertise, resulting in larger and more independent boards. The mean number of business segments for their sample firms was 1.7, and a positive relationship was found between the number of business segments and the size of the board, as well as the proportion of outside directors on the board.

Coles, Daniel and Naveen (2008) argued that firms with greater advising requirements need more directors on their boards, specifically more outsiders. They conducted an indicator variable ADVICE, based on a factor score in the number of business segments, log(sales), and leverage. It was found that the indicator variable was significantly and positively related to board size and board independence. For robustness, the authors replaced the indicator variable with three variables including DIVERSE, which equals one if the firm has more than one business segment and equals zero otherwise; FIRMSIZE, which equals one if the firm has above-median sales in a year; and DEBT, which equals one if the firm has above-median leverage ratio in a year. It was found that all three variables were significantly positive.

2.3.1.1.3   Firm age

It is suggested that as a firm grows, or simply survives as a public entity, its demands for specialized board services are likely to grow as well (Boone et al., 2007; Raheja, 2005).

Based on a sample of firms that went public in US markets from 1988 through 1992, Boone et al. (2007) found that the average number of directors increased steadily after IPO, starting at 6.21 in the year of the IPO and rising to 7.52 by year 10. Their regression results showed that firm age is positively and significantly related to board size and the proportion of independent directors on the board.

Linck, Netter and Yang (2008) suggested this is likely to be the case, since firm complexity increases with firm age for IPO firms. However, they wondered whether this continues to be true once a firm is "mature". The authors included firm age and the square of firm age in their analysis in order to test whether the impact of age on board size is nonlinear. It was found that firm age was positively and significantly related to board size. However, there was a negative relationship between the square of firm age and board size, suggesting that the impact of age on board size increases at a decreasing rate, and complexity in young firms is unlikely to increase at the same rate as complexity in mature firms.

Guest (2008) suggested that firm size and complexity can be gauged by firm age, leverage, or industrial diversification. Firm age was found to be insignificantly and positively related to board size, and significantly and positively related to the proportion of outside directors

on the board. These results suggest that more complex firms have a higher proportion of outsider directors, but provide only mixed evidence that they have larger boards.

2.3.1.1.4 Leverage

Firms with high leverage may depend on external resources to a greater extent and therefore, will also have greater advising requirements (Coles, Daniel & Naveen, 2008). It has been found that one-third of large U.S. firms have a banker on their boards (Kroszner & Strahan, 2001). Byrd and Mizruchi (2005) postulated that the possible benefits of having s on a board of directors include the provision of expertise to management, the enhancement of access to capital, and the provision of superior monitoring of loan covenants. It was found that leverage ratio was positively related to the size of the board and the proportion of outside directors on the board (Coles, Daniel & Naveen, 2008; Guest, 2008; Linck, Netter & Yang, 2008).

2.3.1.2 Monitoring costs and private benefits

Outside directors are more efficient at monitoring, but monitoring costs increase as they verify projects (Harris & Raviv, 2008; Raheja, 2005). Having a higher number of insiders on a board can reduce the coordination costs. Moreover, having a greater number of insiders on a board can increase the likelihood of any one insider revealing his/her superior knowledge, because doings so could improve his/her chance of succession. However, inside directors are also more likely to cooperate with CEOs and are sometimes reluctant to reveal their privileged information due to the benefits that come from keeping it private

(Raheja, 2005). Thus, the net benefits of extra monitoring increase with managers' opportunities to reap private benefits, and decrease with the costs of monitoring (Boone et al., 2007).

2.3.1.2.1 Monitoring costs

The literature indicates that board size decreases as monitoring costs associated with outside directors increase, especially in firms with high growth opportunities, more R&D expenditure, and higher share return variance. Lehn, Sukesh and Zhao (2005) hypothesized there is an inverse relation between growth opportunities and board size for two reasons. First, the 'free rider' problem associated with large boards is more severe in firms with high growth opportunities. Second, firms with high growth opportunities usually are younger and operate in more volatile business environments than low-growth firms; therefore, they require governance structures that facilitate rapid decision-making and redeployment of assets. The empirical results from this study demonstrated that board size decreased in growth opportunities, whereas insider representation increases in growth opportunities.

Four variables were used by Boone et al. (2007) to measure monitoring costs: market-to-book ratio, R&D expenditure, stock return variance, and CEO ownership. First, following Lehn, Sukesh and Zhao (2005), the authors expected high-growth firms to have smaller boards with a high proportion of insiders, and that firms with high market-to-book ratios or high research and development expenses would tend to have significant growth opportunities. Second, they argued that the cost of monitoring would increase with the

volatility of the firm's stock price, because it is difficult to judge manager performance in firms operating with uncertainty. Further, it was expected that CEO ownership would be endogenously correlated with monitoring costs because it is likely that a CEO would mitigate the agency problem if he/she held a large ownership stake. The study's empirical results showed that board size was negatively related to R&D expenditures, the return variance, and CEO ownership, while the negative effect contributed by the market-to-book ratio was statistically insignificant. Moreover, it was found that the market-to-book ratio and CEO ownership were significantly and negatively related to board independence. However, the effect of the return variance was insignificant, and the R&D level had a positive coefficient.

Coles, Daniel and Naveen (2008) expected that R&D-intensive firms would have a lower proportion of outside directors on their boards. It was argued that those firms would benefit from having more insiders on their boards because they require more firm-specific knowledge and therefore, managerial initiative could lead to higher firm value. They found evidence that R&D-intensive firms had higher percentages of insiders on their boards, and for these firms, Tobin's Q increased as the proportion of insiders on the board grew.

Guest (2008) suggested that UK boards play a weak monitoring role due to factors such as the weak enforcement of directors' legal duties and the strong role of institutional investors. Therefore, he postulated that UK boards would not be structured according to the costs or benefits of monitoring. He found no evidence that board independence determinates were related to monitoring costs, which supported the hypothesis that in contrast to US boards, UK boards' independence was not determined by monitoring costs.

2.3.1.2.2   Private benefits

Adams and Ferreira (2007) and Raheja (2005) modelled board structure and generally suggested that the number of outsiders increases in private benefits. Studies exploring this hypothesis utilized a firm's free cash flow, industry concentration, and takeover defence (G-Index) to measure managers' potential private benefits.

There are two interpretations of the presence of a greater number of outside directors on boards of firms with free cash flow. First, Jensen (1986) indicated that firms with large positive cash flow are more likely to invest in money-losing capacity, so the benefits from extra monitoring increase. Second, it was suggested that managers have an incentive to show the market that they are substantial contributors who seek to maximise firm value, and the presence of outsiders on the board is a signal that they will not expropriate the cash flow of minority shareholders (Peasnell, Pope & Young, 2003). Gillian, Hartzell and Starks (2003) suggested that managers of firms with market power are better able to extract private benefits than managers of firms in highly competitive industries. Moreover, they argued that higher levels of the G-index indicate a greater amount of insulation from external market control and a greater opportunity for managers to extract private benefits.

The empirical results confirmed that the proportion of outside directors was positively related to inside directors' private benefits. Using a firm's free cash flow, industry concentration, and takeover defence (G-Index), which is measured as the firm's number of takeover defences plus the number of State antitakeover laws that apply to the firm as indications of managers' potential private benefits, Boone et al. (2007) found that the three

factors were positively and significantly related to board independence. Linck, Netter and Yang (2008) also found that board independence increased in free cash flow.

2.3.1.3 CEO influence

Kieschnick and Moussawi (2004) argued that board independence decreases with managers' influence and increases with institutional investor influence. As outside directors are tougher monitors, more powerful CEOs can bargain with shareholders for a small board with fewer outside directors (Hermalin & Weisbach, 1998). Empirical studies used past performance, CEO tenure, and CEO share ownership to proxy for the CEO's bargaining ability.

Denis and Sarin (1999) suggested that the determination of ownership and board structure is a dynamic process as these factors adjust frequently to economic shocks, leading to observed ownership changes and top executive turnover. Concerning the determinants of board structure, it was found that CEO tenure was negatively related to the proportion of outsiders on the board; moreover, firms in which the top executive is also the founder have lower levels of outsider representation on their boards.

Boone et al. (2007) used CEO tenure and CEO share ownership to test whether the composition of a board reflects a type of negotiation process between the CEO and outside board members. Accordingly, outside director ownership, venture capital investment, and investment bank reputation were used to measure constraints on the CEO's influence. The authors predicted that board independence would be negatively related to the CEO's

influence in negotiations concerning board make-up, and positively related to constraints on the CEO's influence. All five measures were found to be significantly related to board independence in the predicted direction. However, the authors warned that interpretation of the results could be ambiguous. The CEO's influence over board composition could be part of his or her compensation for generating quasi-rents for the firm. An alternate view, however, could be that powerful CEOs pack their boards for personal gain and at shareholder expense.

Following Hermalin and Weisbach (1998), Linck, Netter and Yang (2008) hypothesized that board independence decreases when CEO bargaining power rises, and that a CEO's bargaining power is derived from his/her perceived ability. Using past performance and CEO tenure as the proxies for the CEO's perceived ability, it was found that CEO ownership was significantly and negatively related to board size and independence, and past performance was negatively related to board independence. This suggests that a change in board independence could be driven by poor firm performance rather than by a firm's strategy (Bhagat & Black, 2002).

Guest (2008) hypothesized that CEOs who perform well are able to negotiate a small board with low outsider representation. The empirical results of his study showed that ROA, measured as the ratio of operating profit, has a significantly negative impact on board size and the proportion of outsiders on boards.

2.3.2 Board composition and performance

2.3.2.1 Board size and firm performance

Theoretically, it would seem that keeping boards small should help improve firm performance (Jensen, 1993). Lipton and Lorsch (1992) recommended limiting board membership to seven or eight people because large boards usually end up less effective due to coordination and process problems. Several empirical studies have confirmed the negative contribution of larger board size on firm performance.

Using a sample of 452 large US industrial corporations between 1984 and 1991, Yermack (1996) found an inverse relationship between board size and firm value in terms of Tobin's Q. The mean and median board size of the sample was around 12, and the range was from 4 to 34. He estimated both ordinary least squares (OLS) regressions and fixed-effects models. The regression estimates for both models showed an inverse and significant association between firm value and board size. It was found that Tobin's Q fell by about 0.23 when board size doubled, and by about 0.13 when board size rose by 50%. It was observed that the inverse relationship is consistent with the interpretation that coordination, communication, and decision making problems increasingly hinder board performance as the number of directors increases. However, an alternative interpretation takes the perspective that companies might adjust board size in response to past performance; that is, troubled firms may add directors to increase monitoring capacity. Thus, Yermack (1996) conducted a range of tests to obtain insight into the direction of causation between board size and firm value. The findings demonstrated that while poor performance was

associated with higher levels of both director appointments and departures, the total board size did not change.

Confirming Yermack's findings, Eisenberg, Sundgren and Wells (1998) used a sample of approximately 900 small Finnish firms and found that board size was negatively and significantly correlated with a firm's industry-adjusted return on assets. Interestingly, while the sample for this study, with its small board size (a median size of 3 members and a mean of 3.7 members), was different from Yermack's, which was dominated by firms with large boards, the findings were similar. The authors argued that the effect's presence in small-to-midsize firms with small boards showed that board-size effects can exist even when there is less separation of ownership and control than in large firms. They stated that if there was an ideal board size, the board-size effect indentified in their sample firms suggested it would vary with firm size. Like Yermack (1996), they found that even though more board directors were replaced when early returns on assets were poor, net board size did not change.

Conyon and Peck (1998) examined the effects of board size on corporate performance across five European economies: the United Kingdom, France, Netherlands, Denmark, and Italy. On average, their sample appeared to display considerable similarity in the size of boards. The UK had the smallest size board of directors, with an average of 8.557 members, whereas Italy had the largest with 11.817 members. However, the difference between these mean values was not statistically significant. A significantly negative effect of board size on firm performance in terms of return on shareholders' equity was found for all five countries. When firm value was measured as Tobin's Q, a negative relationship was found

between firm value and board size, but this result was only significant in the cases of the UK and the Netherlands. The authors argued that the benefits of increased monitoring from enlarged boards were outweighed by the problems associated with informational asymmetries between the CEO and the board, as well as communication problems.

Using a sample of firms listed in the Swiss stock exchange during the period from 1980 to 1995, Loderer and Peyer (2002) reported that the average board size declined from 10 in 1980 to 8.5 in 1995. Larger board size was found to be associated with lower q ratios; in particular, an increase in board size by one seat resulted in a 1.95% reduction in firm value. The authors argued that this negative effect could be due to the impairment in decision making and communication that come with increased board size, or perhaps to the free-riding that is encouraged among board members of large-sized boards. They also provided an alternative interpretation of this negative effect, saying it was not so much that large boards made it difficult to run firms properly, but rather that firms whose governance system was not working properly were also characterized by larger boards. Under this interpretation, larger boards could be a characteristic of relatively inefficient firms, not the main reason for their inefficiencies.

Andrés, Azofra and López, (2005) analysed the effect of board size, board composition, and internal functioning on firm value in a sample of 450 non-financial companies from ten countries in Western Europe and North America. It was shown that the mean and median board size were 11.6 and 12 directors, respectively. Furthermore, the whole sample could be separated into three groups: firms with large boards (the German firms had 15 directors on average), firms with a medium-sized board (American, British, Canadian,

Spanish, French, and Belgian companies had 12–13 directors on average), and firms with small boards (Swiss and Italian firms had 9 directors on average). The authors found board size had a strong negative impact on firm value which persisted after controlling for alternative definitions of firm size, board composition and internal functioning, country effect, and industry effect. Moreover, they suggested that the negative effect of larger boards accumulated at a decreasing rate as the board grew in size, with the small and medium-sized boards being the most affected.

Mak and Yuanto (2005) examined the impact of corporate governance mechanisms on firm value (measured by Tobin's Q) for 271 firms listed on the Singapore Exchange Limited (SGX) and 279 firms listed on the Kuala Lumpur Stock Exchange (KLSE). They found that the mean and median board size of the sample was around 7, with a range from 4 to 14. For both countries, Tobin's Q reached a maximum with a board size of 5, and declined thereafter. For Singapore firms, Tobin's Q declined from 2.4 to around 1.8 as board size increased from 5 to between 7 and 8. For Malaysian firms, Tobin's Q declined from 2.3 to around 1.4 as board size increased from 5 to 13. The results from multivariate tests suggested there was an inverse relationship between board size and firm value in both Singapore and Malaysia.

Using a sample of 7,496 small and medium-sized firms in Denmark in 1999, Bennedsen, Kongsted and Nielsen (2008) did not find any significant performance effect when varying the board size at levels below six directors. When increasing the size of boards with six or more members, a significant negative effect was identified, which is consistent with the findings of Yermack (1996) concerning listed US corporations. It was argued that finding

the right number of directors requires balancing the benefits of having sufficient representatives on the board with the costs arising from increased free-riding among directors. They suggested that for most small and medium-sized firms, the optimal number of directors would range from three to five.

2.3.2.2   Board independence and firm performance

Does board composition affect performance? This question has been the main topic of much research in corporate governance. The literature examines the relationship between board composition and firm performance, with many of the studies failing to provide support for the positive effect on performance that is thought to result from a high degree of board independence.

Hermalin and Weisbach (1991) investigated the effects of board composition on firm performance as measured by Tobin's Q. Using data for 134 New York Stock Exchange (NYSE) firms for the period from 1971 to 1983, they failed to find a significant relationship between the proportion of outside directors on boards and Q. Using a sample of 153 randomly selected manufacturing firms in 1979 and 1980, Mehran (1995) examined the relationship between the structure of executive compensation, ownership structure, board composition, and firm performance. It was found that firms with more outside directors had a higher percentage of their executive compensation in equity-based form. However, consistent with Hermalin and Weisbach (1991), no relationship between firm performance and board composition was observed. It was argued that this lack of

correlation could be interpreted as implying that boards are forsaking their obligations to shareholders.

Agrawal and Knoeber (1996) examined the impact of seven control mechanisms on firm performance, including shareholdings of insiders, institutions, and large block holders; the use of outside directors; debt policy; the labour market for managers; and the market for corporate control. Utilizing a sample of nearly 400 large US firms, they found a negative relationship between boards with a larger percentage of outside directors and firm performance. They were puzzled by this result because it seemed the boards contained too many outsiders, which was internally decided.

Klein (1998) also found little association between firm performance and overall board composition for 485 firms listed on Standard and Poor's 500 (S&P 500) in 1992 as well as 486 firms in 1993. Moreover, by examining closely the inner workings of the boards via board committee composition, Klein found a positive relationship between the percentage of inside directors on finance and investment committees and accounting, as well as stock performance measures. Moreover, it was found that firms that increased the number of inside directors on their committees received higher stock returns and return on investments than those decreasing the number of inside directors.

Lawrence and Stapledon (1999) examined how boards with different proportions of independent directors impacted corporate performance for the top 100 Australian companies listed on the Australian Stock Exchange at the end of 1995. They did not find consistent evidence that independent directors either add to or detract from a firm's value.

Utilizing the data for 205 large U.S. public companies for 1985-1987 and 1988-1990, Bhagat and Black (2002) suggested that changes in board independence was driven by poor firm performance rather than by firms' strategies, or industry growth and growth opportunities. They failed to find evidence that greater board independence led to improved firm performance. Andrés, Azofra and López (2005) investigated the effect of board independence on firm value for a sample of 450 non-financial companies from 10 Western European and North American countries. They did not find any robust relationships between the percentage of outside directors and firm value.

However, the results are not all negative. Using data on the boards of 266 major US business corporations for the years 1970 and 1980, Baysinger and Butler (1985) found that board composition, in terms of the proportion of outside independent directors, had a mild effect on organizational performance, but the effect was lagged. Barnhart and Rosenstein (1998) investigated 321 S&P 500 firms to identify the combined effect of ownership structure and board composition on corporate performance. They found stronger evidence of a curvilinear relationship between firm performance and the proportion of outside directors on the firms' boards. Hossain, Prevost and Rao (2001) explored the efficiency of the monitoring carried out by outside directors for a sample of firms listed on the New Zealand Stock Exchange from 1991 to 1997. It was documented that firm performance was positively impacted by the proportion of outside members on these firms' boards. When Choi, Park and Yoo (2007) examined the valuation impact of outside independent directors in Korea, they found a strongly positive effect on firm performance. They argued that "the presence of independent outsiders is critical in an emerging market that is subject to

external shocks and that may lack sufficient liquidity as well as indigenous institutional infrastructure" (p. 942).

Overall, the literature documents that firms with diversified business segments, a long operating history, and complex operating structures prefer a larger board with more independent directors. It has been found that board size and board independence are positively related to managers' private benefits and negatively related to the cost of monitoring. Moreover, powerful CEOs are able to negotiate a small board with a low outsider representation on boards.

Several empirical studies have confirmed the negative effect of board size on firm performance. However, the recent literature argues that the optimal number of directors on board need to balance the benefits of having sufficient representatives with the costs arising from increased free-riding problems. Many studies examine the relationship between board independence and firm performance, and the results are mixed. The positive effect of board independence on firm performance has been found in New Zealand and Korea.

Chapter Three

Essay One

This chapter seeks to provide an answer to the following question: Does regional disparity affect the success of privatization in China? Section 1 of the chapter is an introduction of the essay and Section 2 introduces China's regional disparity. Section 3 proposes the hypothesises, Section 4 describes empirical tests and results, and Section 5 provides a conclusion.

3.1   Introduction

The first essay of this thesis seeks to examine the effect of regional disparity on post-privatization performance in China. China is one of the countries with the sharpest imbalance in development among different regions. I expect that regional disparity would be a significant determinant for the success of SIP in China.

There is controversy over whether privatization is a critical factor in raising productivity (Shirley & Walsh, 2001). D'Souza, Megginson and Nash (2005) suggested that when a firm is privatized during a period of overall economic growth, the performance improvements after privatization may be mostly driven by the favourable macroeconomic environment and not by the change in ownership. Developed counties have a rapid rate of economic growth which makes the success of government divestiture more likely (Boubakri & Cosset, 1998). Feng, Sun and Tong (2004) examined the pre- and post-privatization performance of 30 Singapore government-linked companies (GLCs) in the period from 1964 to1998. Their empirical results showed no increase in real net income or real sales after they controlled for GDP growth. It was argued that Singapore's government-owned enterprises are comparable to privately run enterprises in efficiency, mainly because of the openness of the Singapore economy to intense foreign competition and the excellent functioning of its markets.

Moreover, Cook and Uchida (2003) indicated that a change in ownership alone at the microeconomic level may not be sufficient to guarantee greater enterprise efficiency after privatization. They linked the success of privatization to competition and the regulation of

competition, asserting that weakness in these fields could account for the failure of privatization to yield performance improvements in some developing countries. It was suggested that institutional factors, such as stock market development and product market competition, are significant determinants of the post-privatization performance in developing countries (Boubakri, Cosset & Guedhami, 2005a).

In China, the overall environment is the same across all provinces; however the degree of openness, capital market development, and enforcement of laws and rules may be quite different across regions. It is expected that the task of "privatization" is dependent on the level of economic and institutional development in individual provinces; the more developed the provincial economic and institutional environment, the more successful the task.

3.2   China's regional disparity

Although China has achieved impressive economic growth, it is one of the countries with the sharpest imbalance in development among different regions. "With respect to regional differences, in 2005, per capita GDP in eastern, central and western China was 24,905 RMB Yuan, 11,930 RMB Yuan and 9,280 RMB Yuan, respectively, or 2.68: 1.28: 1 in ratio terms; and urban per capita disposable income in the three regions was 12,584 RMB Yuan, 8,787 RMB Yuan and 8,598 RMB Yuan, respectively, or 1.46: 1.02: 1 by ratio"[5]. China's National People's Congress (NPC) listed regional disparity as one of the most

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[5] China's Development Road -Keynote Speech at the First China-US Strategic Economic Dialogue. Wu Yi, Vice Premier of the State Council of the People's Republic of China, December 14, 2006 Beijing.

pressing problems for China's development. Narrowing the regional development imbalance is a primary target of the Central Government (Chen & Zheng, 2008).

To explore China's regional disparity, five proxies are used in this thesis: (1) provincial GDP per capita, which is widely used as a proxy to present the degree of economic development; (2) provincial real GDP growth, a proxy for presenting provincial economic growth; (3) the degree of openness in the provincial economy, as a proxy of product market competition, and calculated as the proportion of the total value of foreign trade (the sum of exports and imports) to the provincial GDP; (4) the proportion of the provincial government's expenditure on government administration to the provincial GDP, as a proxy of the provincial government's efficiency[6]; (It is noteworthy that Oates (1972) suggested that "'the extent of a public authority's activities in taxation and in the expenditure of public funds is surely a component of fundamental importance in determining its influence on the allocation of resources" (p. 197), and Mauro (1998) further indicated that corruption is associated with distortions in the composition of government expenditures) and (5) the cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges, as a proxy of the regional stock market development.

Table 3.1 reports information on the development of 31 provinces in China from 1996 to 2005. The data used are downloaded from the yearly statistic data provided by the National Bureau of Statistics of China.

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[6] The lower the ratio, the higher the provincial government efficiency proxy.

Table 3.1 Regional Development Performance in China, by Province

Province	GDP Per Capita (Yuan/Person)	GDP Growth (%)	Competition (%)	Government Efficiency (%)	Stock Market Development (%)
Anhwei	5627.00	10.47	9.35	1.15	2.00
Beijing	26514.30	11.00	127.53	0.77	19.95
Chongqing	6284.80	9.98	8.72	1.54	3.64
Fujian	12611.40	11.46	50.51	0.73	5.98
Gansu	4462.20	10.00	6.05	2.05	1.94
Guangdong	14697.60	11.81	137.77	0.95	11.17
Guangxi	5296.40	9.65	8.97	1.40	1.66
Guizhou	3080.70	9.43	5.53	2.65	0.73
Hainan	7468.90	8.73	28.85	1.46	10.40
Hebei	8656.40	11.16	9.53	0.81	2.01
Heilongjiang	9550.80	9.75	8.80	0.95	4.24
Henan	6393.30	10.76	4.36	1.05	1.91
Hubei	7749.50	10.51	5.82	1.02	2.65
Hunan	6423.40	10.10	7.70	1.06	3.95
Inner Mongolia	7701.70	13.55	9.47	1.69	1.77
Jiangsu	13915.50	12.06	52.04	0.73	7.07
Jiangxi	5713.10	10.72	6.42	1.11	2.42
Jilin	7996.80	10.25	12.83	1.07	3.84
Liaoning	12099.10	9.88	33.50	0.84	7.69
Ningxia	5861.00	10.02	11.36	1.67	3.17
Qinghai	6010.60	10.38	6.04	2.74	4.64
Shaanxi	5501.80	10.40	9.93	1.57	3.99
Shandong	11668.30	12.06	25.06	1.66	3.75
Shanghai	36418.80	11.62	103.67	0.79	41.13
Shanxi	6613.80	10.91	8.27	0.55	2.98
Sichuan	5575.60	9.96	6.55	1.33	4.68
Tianjin	21026.70	12.66	82.79	0.61	12.60
Tibet	5395.10	11.54	10.40	10.04	1.43
Xinjiang	8168.00	9.02	13.56	1.89	3.97
Yunnan	5175.50	8.71	8.42	2.02	1.11
Zhejiang	16041.00	12.02	38.98	0.82	6.08
Mean	9861.26	10.66	27.70	1.57	5.95
Maximum	36418.80	13.55	137.77	10.04	41.13
Minimum	3080.70	8.71	4.36	0.55	0.73

Note. This table provides information on the development of 31 provinces in China from 1996 to 2005. Column 1 reports the average provincial GDP per capita; column 2 reports the average provincial real GDP growth; column 3 reports the average provincial product market competition, calculated as the proportion of the total value of foreign trade to the provincial GDP; column 4 reports the average provincial government efficiency, calculated as the proportion of the provincial government's expenditure on government administration to the provincial GDP; and column 5 reports the average cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges.

It is shown that the average GDP per capita is 9861.26 Yuan/person with a maximum of 36418.80 Yuan/person in Shanghai and a minimum of 3080.70 Yuan/person in Guizhou province. According to the real GDP growth, Inner Mongolia presents the largest growth ratio of 13.55% per year, and Yunnan province demonstrates the lowest, with a ratio of only 8.71% per year. Regarding the product market competition proxy, Guangdong province has the largest ratio, 137.77%, and Henan province has the lowest, with 4.36%. Shanxi province is the most efficient province in terms of the provincial government efficiency variable, and Tibet has the largest ratio of 10.04%, indicating a low level of efficiency. Moreover, 41.13% of A-share accounts holders are located in Shanghai, while just 0.73% are in Guizhou province.

There are seven provinces that demonstrate better than average levels in all the regional development proxies: Beijing, Fujian, Guangdong, Jiangsu, Shanghai, Tianjin, and Zhejiang. At the other end of the scale, six provinces score lower than average on all the regional development proxies: Guizhou, Yunnan, Gansu, Qinghai, Ningxia, and Xinjiang[7].

Figure 3.1 illustrates the impressive development gap between the above-mean and the below-mean subsamples. The above-mean subsample contains the seven provinces that have better than average scores in all the regional development proxies. The below-mean subsample is made up of the six provinces with lower than average scores in all the regional development proxies.

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[7] For the provincial government efficiency proxy, the smaller the ratio, the better the efficiency; for other regional development proxies, the larger the score or ratio, the better the performance in that area.

Figure 3.1 Regional development proxy scores of Chinese provinces for the period 1996-2005
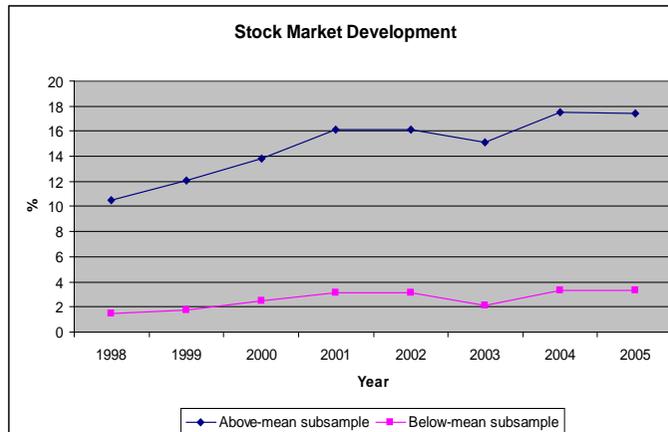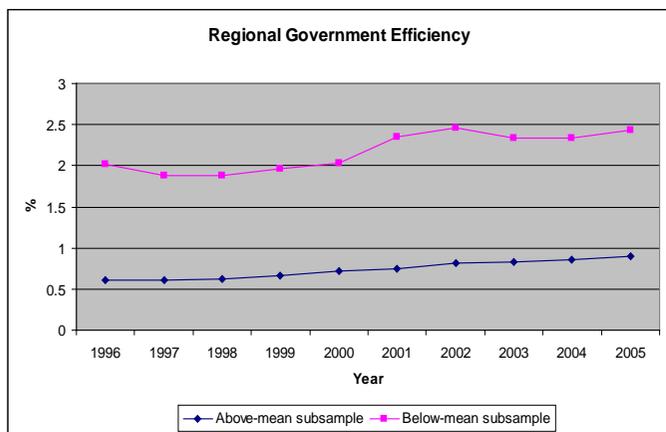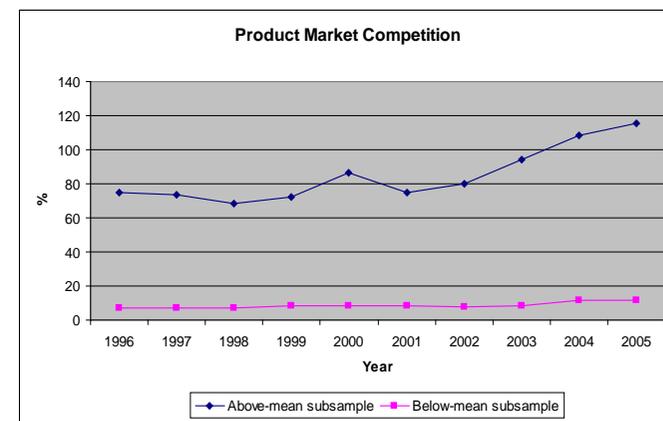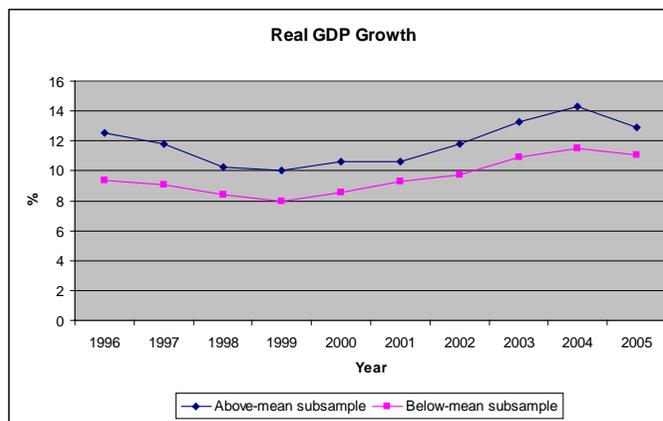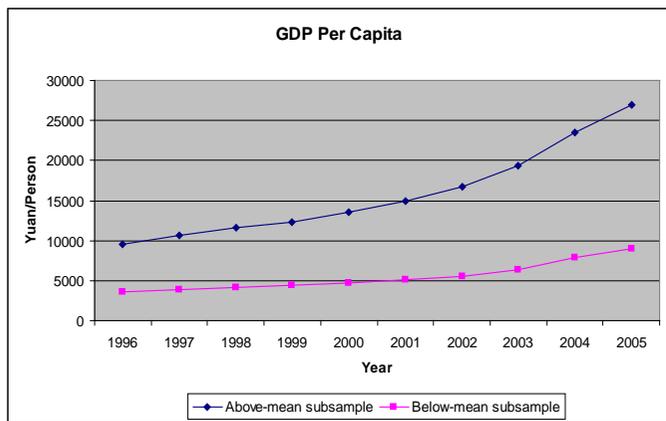
The Wilcoxon z test is employed to examine whether the differences in the regional development proxies between the above-mean subsample and the below-mean subsample are statistically significant, and the results are presented in Table 3.2. It is shown that the differences in the provincial GDP per capital, provincial real GDP growth, degree of openness in the provincial economy, and provincial government efficiency are all significant at the 1% level, while the difference in the regional stock market development is significant at the 5% level. These results indicate that though China has achieved magnificent economic growth, it has not been distributed in a balanced manner among the different provinces.

3.3 Regional disparity on post-privatization performance

3.2.1 Economic development

D'Souza, Megginson and Nash (2005) suggested that the post-privatization performance of a firm privatized during a period of overall economic growth may be driven mostly by the favourable macroeconomic environment and not by the change in ownership. Boubakri and Cosset (1998) indicated that the results of privatization may vary with the level of development, as developed countries have a faster rate of economic growth which makes the success of government divestiture more likely. It was suggested that privatization on the African continent has been progressing more slowly than in other developing areas because of several factors obstructing the success of privatization in Africa, including the relatively low per capita income, poor investment incentive structures, and general institutional instability (Tanyi, 1997). Boubakri and Cosset (1999) examined the pre-

Table 3.2 Development Differences between Above- and Below-Mean Subsamples of Provinces in China

	GDP Per Capita (Yuan/Person)	GDP Growth (%)	Competition (%)	Government Efficiency (%)	Stock Market Development (%)
Above-mean subsample	15917.19	11.80	84.76	0.74	14.85
Below-mean subsample	5459.67	9.59	8.49	2.17	2.59
Difference (above - below)	10457.52	2.21	76.26	-1.43	12.26
Z	-2.8031	-2.8031	-2.8031	-2.8031	-2.5205
Asymp. Sig. (2-tailed)	0.0051	0.0051	0.0051	0.0051	0.0117

Note. This table presents the results of the Wilcoxon z test on the differences in regional development proxy scores. The above-mean subsample contains seven provinces that have better than average scores in all the regional development proxies. The below-mean subsample is made up of six provinces with lower than average scores in all the regional development proxies. GDP Per Capita refers to the provincial GDP (Gross Domestic Product) per capita. GDP Growth refers to the provincial real GDP growth. Competition is calculated as the proportion of the total value of the provincial foreign trade to the provincial GDP. Government's Efficiency is calculated as the proportion of the provincial government's expenditure on government administration to the provincial GDP. Stock Market Development refers to the cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges.

versus post-privatization financial and operating performance of 16 African firms privatized through public share offerings during the period from 1989 to 1996. They failed to find any significant changes after privatization in those countries. Using a sample of 230 firms headquartered in 32 developing countries, Boubakri, Cosset and Guedhami (2005a) found that economic growth is one of the key factors determining post-privatization profitability in developing countries.

Regarding China's SIP, two studies found that location mattered in post-privatization performance. Wei, Varela, Hassan and D'Souza (2003) compared the pre- and post-privatization financial and operating performance of 208 firms that were privatized in China during the period from 1990 to 1997. Firms headquartered in Shanghai, Shenzhen, or Beijing were found to experience significantly greater gains in real sales and sales efficiency. Jia, Sun, and Tong (2005) investigated the overseas-listing effect of the partially privatized SOEs in China. They found that firms located in coastal areas showed more improvement as measured by MBR – the market value of equity divided by the book value of net assets.

Provincial GDP per capita and provincial real GDP growth are used in this thesis to proxy economic development in provincial China. It is expected that provincial GDP per capita and provincial real GDP growth are positively related to post-privatization performance in China.

Hypothesis 1: Provincial GDP per capita and provincial real GDP growth are positively related to post-privatization performance.

3.2.2 Institutional factors

The World Bank (1995) suggested that in developing countries, institutional reform must be accomplished before privatization can capture the benefits of divestiture. Boubakri, Cosset and Guedhami (2005a) indicated that institutional factors such as stock market development and product market competition are the most significant determinants of post-privatization performance in developing countries.

3.2.2.1 The development of the stock market in China

Laffont and Tirole (1993) suggested that it is difficult to monitor the top management of State-owned firms because there is no individual owner with strong motivation to monitor managers. D'Souza, Megginson and Nash (2005) suggested that the characteristics of specific capital markets are highly related to the performance of firms following privatization. Particularly, the benefits of monitoring vary considerably with the level of equity market development. Gupta (2005) argued that stock prices work well as a tool that allows investors to better monitor manager actions and their effectiveness in improving profit performance. He suggested that India's partial SIP reached a significant level of success in part because State-owned shares could be closely monitored by the large number of business analysts and institutional and individual investors involved in India's stock market.

With the establishment of the Shanghai Stock Exchange in December 1990 and the Shenzhen Stock Exchange in July 1991, more and more SOEs were transformed into

publicly listed companies in China. In 1992, the Chinese Security Regulatory Commission (CSRC) was established in order to strengthen supervision relating to Stock Exchange markets and listed companies. Going public opened a new chapter in China's capital market development. However, this stock market development has been unbalanced in its geographical distribution[8].

Before 2001, the CSRC exercised a strict quota on the number of public offerings to restrict the supply of IPO shares. An annual quota was determined by CSRC, and then the quota was allocated among the provinces. The provincial governments were entitled to decide which firms could ultimately go public (Su & Fleisher, 1999). In 2001, an authorization system took the place of the quota system. Under the new system, underwriters recommended those firms which satisfied the listing standards, but the process still had to be approved by the CSRC (Megginson & Tian, 2007). In China, the distribution of listed firms allowed to go public is decided by the government, so the cross-province distribution of the listed companies would not be an appropriate proxy of the development of the regional stock market.

Thus, in this thesis, the cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges is used as a proxy of the development of the regional stock market. In May 1992, shortly after the official birth of the Chinese stock market, the State council created three categories of shares for restructuring SOEs into shareholding

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[8] Based on the statistics provided by the Stock Exchanges, there were 1434 firms listed in the Shanghai and Shenzhen Stock Exchanges in 2006, among which 163 (11.37%) were located in Guangdong province, and just 8 firms (0.56%) were located in Tibet.

companies to be listed on the exchange markets: State Shares, Legal Person Shares, and Individual Shares[9]. This category has been explained well by Sun and Tong (2003).

Individual shares include A-shares, B-shares and H-shares. A-Shares refer to those shares that can be freely traded on the Shanghai and Shenzhen stock exchanges by Chinese citizens and domestic institutions. Since 1st December 2002, the A-Shares market has been open to foreign investors with the approval of the CSRC. At the end of 2006, the number of A-share accounts reached 74.67 million (an increase of 15.85 million since 2000), of which 99.4% belonged to individual investors and 0.6% belonged to institutional investors. In terms of dollar value, 57.48% of these accounts belonged to individual investors, and 42.52% belonged to institutional investors (China Securities Depository and Clearing Corporation Limited, 2006). In China, tradable A-shares generally represent only about one-third of the total number of shares in issue. Therefore, it was argued that it is difficult for tradable shareholders to take an active part in corporate governance (Wang & Deng, 2006). However, it is expected that tradable shareholders have strong incentives to monitor the listed companies. The cross-province A-share accounts distribution could be a proxy of this potential public pressure. That is, listed companies have to signal positively to tradable shareholders due to the public pressure they could bring to bear. Therefore, it is of interest to investigate whether the cross-province distribution of A-share accounts can be shown to correlate with the post-privatization performance of listed firms in China.

Hypothesis 2: The cross-province A-share accounts distribution is positively related to post-privatization performance.

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[9] The Interim Measures for the Shareholding System Experiment, launched on 25 May, 1992.

3.2.2.2 Product market competition

The World Bank (1995) pointed out that competition is a major determinant of post-privatization performance improvements. Cook and Uchida (2003) indicated that the success of privatization is linked to competition and the regulation of competition. It was argued that privatization did not lead to performance improvements in some developing countries because those countries were weak when it came to stimulating competition (Boubakri, Cosset & Guedhami, 2005a; Cook & Uchida, 2003). Wallsten (2001) explored the effects of privatization, competition, and regulation on telecommunications performance in 30 African and Latin American countries from 1984 through 1997. The results suggested that privatization alone was not beneficial; it needed to be complemented by competition to improve performance. Boubakri, Cosset and Guedhami (2005a) found that trade liberalization was associated with higher levels of investment and output in developing countries.

The proportion of the total value of provincial foreign trade (the sum of exports and imports) to the provincial GDP is used as the measure of the level of product market competition in the provincial market. It is expected that product market competition would be positively related to post-privatization performance.

Hypothesis 3: The proportion of the total value of provincial foreign trade to the provincial GDP is positively related to post-privatization performance.

3.2.2.3 Government efficiency and law enforcement

Perotti and Ojien (2001) suggested that a successful privatization program requires institutional changes which contribute significantly to the strengthening of the legal framework underlying equity investment. It is believed that privatization creates "an economically and politically powerful lobby for institutional reform" (Boycko, Shleifer & Vishny, 1995, p. 154). However, Hoff and Stiglitz (2005) indicated that although it is expected that privatization would create a demand for private property rights and the rule of law, the linkage between privatization and the demand for the rule of law has been misinterpreted. They argued that privatization without institutions to enforce good corporate governance may damage private property rights, and make it easy for the controlling shareholder to engage in tunneling. Experiences from the story of Russia's privatization suggest that the development of institutions to control self-dealing is central to the successful privatization of large firms, because corrupt privatization of large firms can destroy the performance of the whole reform (Black, Kraakman & Tarassova, 2000).

For China, central government policies are normally the same across all regions; however, law enforcement at the local level could be quite different. The proportion of the provincial government's expenditure on government administration to the provincial GDP is used in this thesis to proxy provincial government efficiency (the higher the ratio, the lower the efficiency). It is expected that an efficient regional government would undertake better law enforce and therefore, lead to better post-privatization performance.

Hypothesis 4: The provincial government efficiency is positively related to post-privatization performance.

3.4 Data, methodology, and empirical results

3.4.1 Data

The initial sample includes 1028 firms privatized during the period from 1994 to 2002. Firms privatized since 1994 are selected for this study because China changed accounting standards to be closer to international norms, and the new standards went into effect in January 1994. The pre-listing data are recompiled by the auditing firms using new standards, so the accounting standard is identical between pre- and post-listing (Sun & Tong, 2003). Financial firms are excluded, as their financial data are not comparable to that of other firms. Firms that do not have pre-listing data available are dropped. The final sample includes 514 firms privatized during the period from 1996 to 2002. I collect the performance data from the CSMAR China Stock Market Financial Database. The board composition data come from the CSMAR China Listed Firm's Corporate Governance Research Database.

Table 3.3 presents information on the 514 sample firms. Panel A describes the sample by the year of IPO. Panel B breaks down the sample by location. Panel C groups the sample by the size of the firms (Firms whose Base-10 logarithm of total sales is higher than the sample mean are recognised as large firms; the others are classified as small firms). Panel D reports the sample by industry concentration (firms that are in highly regulated industry

Table 3.3 Description of Sample Chinese Firms According to Categories of Characteristics

Panel A: By Year of IPO			Panel B: By Location		
		Percentage			Percentage
	Number	(%)		Number	(%)
			Above-mean subsample	173	33.66
1996	77	14.98	Below-mean subsample	53	10.31
1997	117	22.76	Other	288	56.03
1998	86	16.73			
1999	69	13.42			
2000	101	19.65			
2001	28	5.45			
2002	36	7			
Total	514	100	Total	514	100

Panel C: By Size			Panel D: By Industry Concentration		
		Percentage			Percentage
	Number	(%)		Number	(%)
Large Firm	278	54.09	Regulated Industry	39	7.59
Small Firm	236	45.91	Other	475	92.41
Total	514	100	Total	514	100

Panel E: By Type of Control Relinquishment		
		Percentage
	Number	(%)
State gives up control while listing	165	32.1
State retains control while listing	349	67.9

Note. This table presents information on the 514 sample firms. Panel A describes the sample by the year of IPO. Panel B breaks down the sample by location. Above-mean subsample refers to the seven provinces that have better than average scores in all the regional development proxies. Below-mean subsample refers to the six provinces that have lower than average scores in all the regional development proxies. Panel C groups the sample by the size of the firms (Firms whose Base-10 logarithm of total sales is higher than the sample mean are recognised as large firms; the others are classified as small firms). Panel D reports the sample by industry concentration (firms that are in highly regulated industry including electric power, steam and hot water production and supply, petroleum refining and coking, telecommunications, oil and gas extraction, railroad transportation, and highway transportation, have been grouped together). Panel E reports on the sample according to the type of control relinquishment implanted during listing.

including electric power, steam and hot water production and supply, petroleum refining and coking, telecommunications, oil and gas extraction, railroad transportation, and highway transportation, have been grouped together). Panel E reports on the sample according to the type of control relinquishment (50% or greater sale) implanted during listing. It shows that 33.66% of the firms are from the above – mean subsample, and 10.31% of the firms are from the below-mean subsample. Moreover, 7.59% of firms are from regulated industries and 32.1% of them undergo control relinquishment (50% or greater sale) while listing.

3.4.2   Does firm performance improve after SIP in China?

One special feature of SOE privatization in China is that SIP firms typically go through primary offerings instead of secondary offerings. Under primary offerings, the capital raised through SIP is for the firm. SIPs thus increase a firm's asset and equity accounts by an equal amount (Sun & Tong, 2003). ROS, defined as operating income divided by sales, is utilized as the profitability measure, which means operating income is used instead of net income as the profitability measure. This choice is more accurate because listed companies in China often receive preferential tax rates and sometimes fiscal reimbursement from government authorities (Jiang, Yue & Zhao, 2006).

Following Megginson, Nash, and van Randenborgh (1994), performance proxies for every firm for a 7-year period are computed: 3 years before to 3 years after the privatization. Then, the mean of each variable for each firm over the pre- and post-privatization windows is calculated. For all firms, the year of transfer is excluded from the mean calculations.

The Wilcoxon z test is used to examine whether the difference in performance measures between pre- and post-privatization is significant. I also carry out a proportion z test to see if the proportion of positive or negative change is greater than 50%.

Table 3.4 presents the Wilcoxon z test results of the whole sample as well as the subsamples. The empirical results show that for the whole sample, the median ROS drops from 0.1420 to 0.1153 after privatization. The decrease is highly significant based on the Wilcoxon z test; the proportion test is also statistically significant. The subsample analysis shows that profitability decreases irrespective of whether the firms are located in developed provinces or underdeveloped provinces. These results are consistent with the previous studies in that post-privatization performance, in terms of ROS decreases following SIP in China (Jia, Sun & Tong, 2005; Quan & Huyghebaert, 2004; Sun & Tong, 2003; Wang, Xu & Zhu, 2004). The literature gives several possible explanations such a decline including: (1) The inefficient ownership structure, in which the State continues to manage substantial shareholdings in listed firms. (2) An inefficient board structure in which the State often controls the make-up of the board of directors, as the top management of privatized SOEs are typically nominated by the government and are kept the same as pre-privatization (Chen, Firth & Rui, 2006). (3) Firms may window-dress their accounting figures prior to going public, and listed firms may also be expropriated by their parent companies after going public(Wang, Xu & Zhu, 2004). (4) China's SIP is almost all IPOs; the negative IPO effect is greater than the positive privatization effect. (5) In China, only SOEs with the highest profitability are chosen to be privatized. The high profitability reverses to the average level so that SIP firms will have negative profitability changes after SIP (Jiang, Yue & Zhao, 2006).

Table 3.4 Performance Differences between Pre- and Post-Privatization Periods for Sample Firms in China

Sample	n	Before Listing Mean	Before Listing Median	After listing Mean	After listing Median	Mean Difference	Median Difference	Z	Asymp. Sig. (2-tailed)	Proportion Test Positive/ Negative
Whole	514	0.2214	0.1420	0.1081	0.1153	-0.1133	-0.0267	-9.1025	0.0000	156/358, 0.000
Above-mean subsample	173	0.1677	0.1207	0.1205	0.1087	-0.0472	-0.0120	-4.2511	0.0000	58/115, 0.0000
Below-mean subsample	53	0.1598	0.1483	0.1047	0.1039	-0.0551	-0.0444	-2.3327	0.0197	21/32, 0.1690
Others	288	0.2643	0.1568	0.1013	0.1214	-0.1630	-0.0354	-7.7010	0.0000	77/211, 0.000

Note. This table presents the Wilcoxon *z* test results on the difference in ROS, measured as operating income divided by sales, between pre- and post-privatization levels for the firms in this sample. The above-mean subsample contains seven provinces that have better than average scores in all the regional development proxies. The below-mean subsample is made up of six provinces with lower than average scores in all the regional development proxies.

3.4.3   Does regional disparity matter?

The results of Wilcoxon z test show that post-privatization performance, in terms of ROS decreases following SIP in China. Most existing studies on China's SIP focus on firm specific factors, we focus on macro level factor that may affect post-privatization performance in China.

3.4.3.1   The Mann-Whitney test

The Mann-Whitney test is used to examine whether the difference in terms of performance between firms in the above-mean subsample and other firms that are not in the above-mean subsample is statistically significant. Table 3.5 presents the results of the Mann-Whitney test. It is shown that firms in the above-mean subsample have lower pre-ROS compared with other firms (0.1207 versus 0.1553), and the difference is significant at the 1% level. This results is not surprising because only real well performed firms can get the opportunity to be listed due to the strict quota system. However, the above-mean subsample performs better in terms of the change in ROS than others (-0.0216 versus -0.0325), and the difference is significant at the 10% level. This result indicates that firms located in developed provinces perform better than firms located in underdeveloped provinces.

Table 3.5 Comparison of the Performance between Above - Mean Subsample and Others

		PRE-ROS	POST-ROS	ΔROS
	n	173	173	173
	Mean	0.1677	0.1206	-0.0471
Above-mean subsample	Median	0.1207	0.1082	-0.0216
	n	341	341	341
	Mean	0.2481	0.1018	-0.1463
Others	Median	0.1553	0.1196	-0.0325
	Mean	-0.0805	0.0187	0.0992
Sector difference (Above-Others)	Median	-0.0346	-0.0114	0.0109
	Z	-3.2370	-1.4483	-1.8719
The Mann-Whitney test	Asymp. Sig. (2-tailed)	0.0012	0.1475	0.0612

Note. This table presents the comparison of the performance between firms in the above-mean subsample and other forms. PRE-ROS represents the 3-year average ROS before the firms listed, and POST-ROS represents the 3-year average ROS after the firms listed. ΔROS represents the difference between POST-ROS and PRE-ROS. The above-mean subsample contains seven provinces that have better than average scores in all the regional development proxies. Others contains sample firms that are not in the above-mean subsample.

3.4.3.2 Cross-sectional analysis

The Mann-Whitney test suggests that firms in the above-mean subsample perform better in terms of change in ROS than other firms, but the factors that may affect firm performance are not controlled. Cross-sectional analysis is used to explore in depth the effects of regional disparity on firm performance. A dummy variable, Location, is conducted, which equals 1 if the firm is located in the above-mean subsample. The following factors with the potential for affecting firm performance are controlled in the analysis:

Firm size effect. It is expected that firm size is negatively related to post-privatization performance. Following Sun and Tong (2003), total sales are used as the proxy for firm size. It was argued that large SOEs have larger market shares and more market power, but also encounter more redundancy and bigger agency problems, which are detrimental to a firm's performance (Sun & Tong, 2003). The empirical results showed that firm size had a negative impact on market book ratio, which suggests that the market was concerned about larger agency problems for larger SOEs (Sun & Tong, 2003).

Leverage effect. The debt problem of SOEs is a big issue in China which has plagued SOE reform all along. In the early 1990s, the average debt/asset ratio of SOEs reached 80%. By 1990, the whole of China was awash with bad debt, which became known as the "triangle debt" problem (Sun, Tong & Tong, 2002). Empirical studies have found that leverage is negatively related to firm performance (Sun, Tong & Tong, 2002; Sun and Tong, 2003).

Board size effect. It is argued that keeping boards small can help improve firm performance, because large boards become less effective due to coordination and process problems (Jensen, 1993; Lipton & Lorsch, 1992). Several empirical studies have confirmed the proposed negative effect of board size on firm performance (Bennedsen, Kongsted & Nielsen, 2008; Eisenberg, Sundgren & Wells, 1998; Loderer & Peyer, 2002; Yermack, 1996).

Ownership effect. Boycko, Shleifer, and Vishny (1995) suggested that the inefficiency of State-owned firms results from pursuing objectives specified by politicians, such as employment, and they predicted efficiency gains would come from privatization only if control rights were passed from the government to the private sector. It has been documented that control relinquishment after privatization is positively related to post-privatization performance (D'Souza, Megginson & Nash, 2001; D'Souza, Megginson & Nash, 2005).

Industry effect. It was suggested that regulated industries are typically natural monopolies, and in China they have been found to perform better than non-regulated industries after listing (Sun & Tong, 2003). Therefore, it is expected that firms from these highly regulated industries (including electric power, steam and hot water production and supply, petroleum refining and coking, telecommunications, oil and gas extraction, railroad transportation, and highway transportation) would yield better performance after listing in China.

Pricing effect. The CSRC abolished formula-based IPO pricing on February 11, 1999.[10]

Since then, Chinese IPO firms have been allowed to price IPOs through negotiation with underwriters after taking into account market conditions and firm-specific prospects (Kao, Wu & Zhang, 2009). It is thought that since this change in 1999, firms have had less incentive to manipulate their accounting figures. Therefore, it is expected that firms privatized after 1999 may have greater post-privatization performance changes.

The initial regression specification for the post-privatization performance is as follows:

$$\text{Performance} = \alpha_0 + \beta_1 \text{Location} + \beta_2 \text{Firm Size} + \beta_3 \text{Leverage} + \beta_4 \text{Board Size} + \beta_5 \text{Relinquish} + \beta_6 \text{Industry} + \beta_7 \text{Year} + \varepsilon$$

Table 3.6 reports the regression results of the cross-sectional analysis. The 3-year average ROS after listing, ROS changes after listing, and the 3-year average Tobin's Q after listing are used to measure firm performance. Tobin's Q is approximated as book assets minus book equity plus market value of equity, all divided by book assets. It is shown that after controlling for the factors that could affect post-privatization performance, Location is positively and significantly related to 3-year average ROS after listing, ROS changes, and Tobin's Q. The positive effect of Location is statistically significant at the 1% level in terms of Tobin's Q. It is also found that firm size is significantly and negatively related to post-ROS and Tobin's Q at the 1% level, but positively related to ROS changes (although not statistically significantly). This result indicates that although big firms have bigger agency problems, they get more benefits from privatization in terms of accounting

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[10] Between January 1, 1996 and February 11, 1999, the IPO price was set at around 15 times the earnings per share. Since 1999, the CSRC has raised the target P/E ratio to 20 when pricing new IPOs (Kao, Wu & Zhang, 2009).

performance. Opposite to my hypothesis, control relinquishment is negatively related to post-ROS and Tobin's Q. Firms from regulated industries are shown to yield worse performance in terms of post-ROS, but yield better performance than non-regulated industry in terms of ROS change. Moreover, firms privatized from 1996 to 1999 perform better than those privatized from 2000 to 2002 in terms of Tobin's Q, which suggests that the market recognizes the fact that better firms are listed earlier in the process.

Table 3.6 Cross-Sectional Regression – Does Regional Disparity Matter?

	Post-ROS		ΔROS		Tobin's Q	
	Coef.	P	Coef.	P	Coef.	P
Location	0.042	0.129	0.065	0.504	0.258	0.003
Firm Size	-0.100	0.001	0.135	0.185	-1.029	0.000
Leverage	-0.470	0.000	0.374	0.316	-0.721	0.028
Board Size	-0.003	0.505	0.000	0.984	-0.016	0.288
Control Relinquishment	-0.074	0.010	0.040	0.688	-0.183	0.040
Regulated Industry	0.092	0.061	-0.547	0.002	0.206	0.175
Year of Privatization	0.042	0.128	0.117	0.230	0.961	0.000
Constant	1.229	0.000	-1.540	0.065	10.924	0.000
Observation	514		514		514	
Adjusted R^2	0.0769		0.0182		0.3597	

Note. Location is a dummy that equals 1 when a firm is included in the above-mean subsample; otherwise, it equals 0. Firm Size is measured as a firm's 3-year average Base-10 logarithm of total sales before listing. Leverage is measured as the 3-year average ratio of total debt to the book value of assets before listing. Board Size is measured as the number of directors on the board while listing. Control Relinquishment is a dummy, which equals 1 when State-owned shares occupy less than 50% of the total outstanding shares after privatization; otherwise it equals 0. Regulated Industry also refers to a dummy, which equals 1 if the firm belonged to a highly regulated industry, otherwise it equals 0. Year of Privatization is a dummy variable, where firms privatized during the time period from 1996 to 1999 equals 1, and all others equals 0.

3.4.3.3 Panel data analysis

Panel data analysis has several advantages over cross-sectional or time-series data analysis, including the ability to increase degrees of freedom and reduce the collinearity among explanatory variables (Hsiao, 2003). In the following section, I estimate a random-effects GLS regression using panel data to test the effect of the five regional development proxies on firm performance. The panel data cover the 514 sample firms for the period from 1999 to 2004.

The regression specification is as follows:

$$\text{Tobin's Q} = \alpha_0 + \beta_1 \text{Development Dummy} + \beta_2 \text{Firm Size} + \beta_3 \text{Leverage} + \beta_4 \text{Board Size} + \beta_5 \text{Board Independence} + \beta_6 \text{Industry} + \beta_7 \text{State shareholding} + \beta_8 \text{Year Dummy} + \varepsilon$$

A pairwise correlation matrix of all independent variables is presented in Table 3.7, and the issues regarding multicollinearity will be discussed below. The dependent variable is Tobin's Q from 1999 to 2004. Independent variables include dummy variables for the different years comprising the data set. GDP Per Capita refers to the provincial GDP (Gross Domestic Product) per capita. GDP Growth refers to the provincial real GDP growth. Competition is calculated as the proportion of the total value of the provincial foreign trade to the provincial GDP. Government's Efficiency is calculated as the proportion of the provincial government's expenditure on government administration to the provincial GDP. Stock Market Development refers to the cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges.

Table 3.7 Correlation Matrix Comparing the Characteristics and Performance Outcome of Chinese Firms Privatized between 1996 and 2002

	GDP	GDP Growth	Competition	Government Efficiency	Stock Market Development	Firm Size	Leverage	Board Size	Board Independence	Regulated Industry	State Shareholding
GDP	1										
GDP Growth	0.5582	1									
Competition	0.5545	0.4144	1								
Government Efficiency	-0.3358	-0.0162	-0.2862	1							
Stock Market Development	0.2806	0.2591	0.7443	-0.2684	1						
Firm Size	0.2360	0.2227	0.2117	-0.1906	0.2245	1					
Leverage	0.1012	0.1712	-0.0045	0.0132	0.0032	0.1802	1				
Board Size	0.0487	0.0461	0.0089	0.0130	0.0444	0.2001	0.0092	1			
Board Independence	0.2879	0.6297	0.0903	0.0715	0.0591	0.1900	0.2012	0.0438	1		
Regulated	0.0019	0.0120	0.0003	-0.0247	0.0124	0.0634	-0.0357	0.1019	0.0010	1	
Government Bureaucrats	-0.0598	-0.082	-0.0478	0.0160	-0.0359	-0.1190	0.0059	-0.0172	-0.0636	0.0166	1

Note. This table illustrates the pairwise correlation matrix for the sample firms. GDP per capita is measured as the Base-10 logarithm of the provincial GDP. GDP growth is designated as the growth rate of the provincial GDP per capita. Competition is measured as the proportion of the total value of exports and imports to the provincial GDP. Government Efficiency is measured as the proportion of the provincial government expenditure on government administration to the provincial GDP. Stock Market Development refers to the regional distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges. Firm Size is measured as the Base-10 logarithm of total sales of the firm. Leverage stands for the leverage ratio, which is equal to total liabilities divided by total assets. Board Size is measured as the total number of directors on the board. Board Independence is measured as the proportion of independent directors to the total number of directors on the board. Regulated Industry refers to a dummy, which is equal to 1 when the firm belonged to a highly regulated industry such as electric power, steam and hot water production and supply, petroleum refining and coking, telecommunications, oil and gas extraction, railroad transportation, or highway transportation; otherwise, it is equal to 0. Government Bureaucrats is measured as the proportion of shares owned by government bureaucrats to the total number of shares.

Board independence is defined as the proportion of independent directors to the total number of directors on the board. State shareholding refers to the proportion of the shares owned by government bureaucrats to the total number of shares[11]. It is argued that government bureaucrats are not fully pursuing policies designed to maximise profitability and efficiency because they have various social and political objectives (Chen, Firth & Rui, 2006). It is expected the proportion of the shares owned by government bureaucrats to be negatively related to Tobin's Q.

Table 3.8 reports the regression results of the panel data analysis. It is found that when each regional development proxy is regressed on Tobin's Q with other control variables, the results are consistent with my hypothesis that GDP per capita, GDP growth, the product market competition proxy, and regional stock market development proxy are significantly and positively related to Tobin's Q. The proportion of the provincial government's expenditure on government administration to the provincial GDP is positively related to Tobin's Q, but not at a statistically significant level (with $p = 0.946$).

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[11] Delios, Wu and Zhou (2006) grouped the Chinese listed firms' shareholding into 16 identities: 1. Local Government. 2. Government Ministry. 3. Government Bureau. 4. Industry Company. 5. State Asset Investment Bureau. 6. State Asset Management Bureau. 7. Infrastructure Construction Company. 8. Market-oriented State Owned Enterprise. 9. Research Institute. 10. Security Company. 11. Investment Fund. 12. Privately owned companies. 13. Individual. 14. Foreign shareholders. 15. State Owned Bank. 16. Work Union. Berkman, Cole and Fu (2009) re-grouped the 16 identities into three categories: State Bureaucrats, Market-Oriented SOEs and Private Entities. State Bureaucrats include Local Government, Government Ministry, Government Bureau, State Asset Investment Bureau, State Asset Management Bureau, Research Institute, and State Owned Bank. Following Berkman, Cole and Fu (2009), I group shares owned by Local Government, Government Ministry, Government Bureau, State Asset Investment Bureau, State Asset Management Bureau, Research Institute and State Owned Bank as Shares Owned by Government Bureaucrats.

Consistent with the cross-sectional analysis, firm size and debt ratio are significantly negatively related to Tobin's Q. However, contrary to my hypothesis, it is found that the proportion of the shares owned by government bureaucrats to the total number of shares is significantly positively related to Tobin's Q. This positive relationship between government shareholding and firm performance can be attributed to the effect of the presence of State shareholders on investor perception. Sun, Tong, and Tong (2002) suggested that government ownership has an impact on investors' perceptions of firm value and moreover, there are several potential benefits of government ownership, such as the government's political support and business connections, which are valuable and necessary to vitalize performance. Investors interpret high equity holding by the State as a sign of government confidence in a firm's post-listing performance and also as a business guaranty by the State (Mok & Hui, 1998). Cheung, Jin, Rau and Stouraitis (2008) analyzed related party transactions between publicly listed Chinese firms and their government shareholders. They found that minority shareholders benefited when they entered into transactions with central government shareholders.

Model 6 of Table 3.8 reports the results when all the five regional development proxies are included together. Lubotsky and Wittenberg (2007) argued that "If the different proxies are in fact all measuring the same underlying phenomenon, then there is only one structural coefficient to be estimated. Putting multiple proxies in the regression may likely result in many insignificant individual coefficients" (p.80). Due to the multicollinearity of the proxy variables (all significant at the 1% level), Model 6 may introduce an attenuation bias into the coefficient estimates. The results show that the coefficients on GDP per capita and the stock market development proxy turn negative, though not significantly. The coefficient on

Table 3.8 Panel Data Analysis – Does Regional Disparity Matter?

	Model 1 Coef.	Model 2 Coef.	Model 3 Coef.	Model 4 Coef.	Model 5 Coef.	Model 6 Coef.
GDP	0.2970**					-0.0402
GDP Growth		0.0490***				0.0247
Competition			0.0037***			0.0037***
Government Efficiency				0.0022		0.0619*
Stock Market Development					0.0127***	-0.0006
Control Variables						
		.				
Firm Size	-0.6918***	-0.6842***	-0.7226***	-0.6702***	-0.7031***	-0.7012***
Leverage	-0.6654***	-0.6662***	-0.6243***	-0.6628***	-0.6334***	-0.6157***
Board Size	-0.0126	-0.0121	-0.0109	-0.0127	-0.0137	-0.0119
Board Independence	0.0011	0.0009	0.0011	0.0013	0.0012	0.0009
Regulated Industry	0.0286	0.0242	0.0291	0.0256	0.0255	0.0354
Government Bureaucrats	0.5455**	0.5739***	0.5481**	0.5412**	0.5815***	0.6129***
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	8.0505***	8.7060***	9.3222***	9.0171***	9.2394***	9.0243***
Group	514	514	514	514	514	514
Observation	2775	2775	2775	2775	2743	2743
R^2	0.4893	0.4887	0.4953	0.4848	0.4905	0.4961

Note. This table presents the regression results of the panel data analysis. The dependent variable is Tobin's Q, measured as book assets minus book equity plus market value of equity, all divided by book assets. Firm Size is measured as the Base-10 logarithm of total sales of the firm. Leverage stands for the debt ratio, which is calculated as total liabilities to total assets. Board Size is measured as the total number of directors on the board. Board Independence is measured as the proportion of independent directors to the total number of directors on the board. Regulated Industry refers to a dummy variable with value=1 if the firm belongs to a highly regulated industry; otherwise it equals 0. Government Bureaucrats is measured as the proportion of the shares owned by Government Bureaucrats to the total number of shares.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

the government efficiency proxy becomes significantly positive at the 10% level. However, the coefficient on Competition is still positively significant at the 1% level. This result indicates that Competition is the most significant regional development proxy in terms of the economic and institutional post-privatization performance determinants in China.

3.4.3.4 Robustness test

Firstly, Boubakri, Cosset and Guedhami (2005a) suggested that using performance ratios as dependent variables may bias the results due to potential outliers. Following D'Souza, Megginson and Nash (2005), I identify outliers (i.e., dependent variables more than three standard deviations from the mean) and drop them from the regressions. The results are qualitatively similar to the results presented in Table 3.8.

Secondly, the dummy Location is used instead of the regional development proxies for the panel data regression. Location is a dummy which is equal to 1 if a firm is located in Beijing, Fujian, Guangdong, Jiangsu, Shanghai, Tianjin, and Zhejiang; otherwise, it is equal to 0. The results contained in Table 3.9 show that the dummy Location is highly positively related to Tobin's Q, with p = 0.002. This result confirms that firms located in developed provinces demonstrate better post-privatization performance in China.

Third, alternative measures of institutional factors are used to verify the robustness of the findings. Education has long been recognized as a significant institutional factor in improving economic development. It was argued that education can stimulate economic growth by fostering democracy and therefore creating good governance (Aghion, Caroli &

Penalosa, 1999). I use the regional education level, measured by the proportion of the population with a college or higher level of education to the total population aged 6 and over, as an institutional factor for the panel data analysis.

Table 3.9 Panel Data Analysis – Does Location Matter?

	Coef.	P
Location	0.1379	0.0020
Control Variables		
Firm Size	-0.6693	0.0000
Leverage	-0.6652	0.0000
Board Size	-0.0123	0.1730
Board Independence	0.0011	0.6700
Regulated Industry	0.0308	0.7950
Government Bureaucrats	0.5198	0.0180
Year Dummy	Yes	
Constant	8.9775	0.0000
Group	514	
Observation	2742	
R^2	0.445	

Note. The dependent variable is Tobin's Q, measured as book assets minus book equity plus market value of equity, all divided by book assets. Location is a dummy which is equal to 1 if a firm is located in Beijing, Fujian, Guangdong, Jiangsu, Shanghai, Tianjin, and Zhejiang; otherwise, it is equal to 0. Firm Size is measured as the Base-10 logarithm of total sales of the firm. Leverage stands for the debt ratio, which is equal to total liabilities divided by total assets. Board Size is measured as the total number of directors on the board. Board Independence is measured as the proportion of independent directors to the total number of directors on the board. Regulated Industry refers to a dummy which is equal to 1 when a firm belongs to a highly regulated industry; otherwise, it is equal to 0. Government Bureaucrats is measured as the proportion of the shares owned by government bureaucrats to the total number of shares.

It can be seen in Model 1 of Table 3.10 that the Education dummy is significantly and positively related to Tobin's Q. Moreover, the proportion of persons employed in primary industry[12] is used, as a proxy of the degree of Industrialization (a large ratio refers to a lower level of industrialization), for the regression. The results in Model 2 of Table 3.10 suggest that the Industrialization dummy is significantly and negatively related to Tobin's

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[12] Primary industry refers to farming, forestry, animal husbandry and fishery.

Q. In model 3, Education, Industrialization, and Competition are all included in the regression. It is found that the coefficient on Competition is still significantly positive at the 1% level. These results strongly support the hypothesis in this thesis that the success of privatization needs to be linked to the injection of competition to improve SIP performance in China.

Table 3.10 Panel Data Analysis – Do Education and Industrialization Matter?

	Model 1		Model 2		Model 3	
	Coef.	P	Coef.	P	Coef.	P
Education	0.0236	0.0000			0.0181	0.0710
Primary Industry			-0.0057	0.0040	0.0071	0.0370
Competition					0.0043	0.0000
Control Variables						
Firm Size	-0.7037	0.0000	-0.7036	0.0000	-0.7158	0.0000
Leverage	-0.6464	0.0000	-0.6541	0.0000	-0.6165	0.0000
Board Size	-0.0130	0.1470	-0.0133	0.1390	-0.0100	0.2630
Board Independence	0.0013	0.5970	0.0012	0.6190	0.0012	0.6210
Regulated Industry	0.0243	0.8350	0.0213	0.8560	0.0341	0.7700
Government Bureaucrats	0.5338	0.0140	0.5425	0.0130	0.5408	0.0130
Year Dummy	Yes	Yes	Yes		Yes	
Constant	Yes	Yes	Yes		Yes	
Group	514		514		514	
Observation	2775		2775		2775	
R^2	0.4476		0.4457		0.4524	

Note. The dependent variable is Tobin's Q, measured as book assets minus book equity plus market value of equity, all divided by book assets. Education is calculated as the proportion of the population having completed college or higher levels of education to the total population aged 6 and over. Primary Industry is calculated as the proportion of the population employed in primary industry. Firm Size is measured as the Base-10 logarithm of total sales of the firm. Leverage stands for the debt ratio, which is equal to total liabilities divided by total assets. Board Size is measured as the total number of directors on the board. Board Independence is measured as the proportion of independent directors to the total number of directors on the board. Regulated Industry refers to a dummy which is equal to 1 when a firm belongs to a highly regulated industry such as electric power, steam and hot water production and supply, petroleum refining and coking, telecommunications, oil and gas extraction, railroad transportation, or highway transportation; otherwise, it is equal to 0. Government Bureaucrats is measured as the proportion of shares owned by government bureaucrats to the total number of shares.

3.5   Conclusion

Consistent with the previous studies, the empirical results of this thesis show that profitability in terms of ROS decreases following SIP in China, irrespective of whether the firms are located in developed provinces or underdeveloped provinces. China has achieved magnificent economic growth, but it is one of the countries with the sharpest imbalance in development among different regions. As pointed out by Boubakri and Cosset (1998), the results of privatization may vary with the level of development, and thus a rapid rate of economic growth makes the success of privatization more likely. Moreover, with the transition of the economy from a planned economic structure to a market-oriented system, product market competition and the enforcement of laws and rules may be different across various provinces in China. Therefore, I expect that regional disparity would be a significant determinant for the success of SIP in China.

The cross-sectional analysis shows that the Location dummy is positively related to post-privatization performance. Moreover, a random-effects GLS regression is estimated using panel data to explore in depth the effects of regional disparity on post-privatization performance in China. The results show that provincial GDP per capita, GDP growth, product market competition and the provincial stock market development are all significantly and positively related to Tobin's Q. When all five regional development proxies are included together, the coefficient on Competition is still positively significant at the 1% level. This result indicates that the injection of competition is a significant factor to improve firm performance after privatization in China.

Contrary to my hypothesis, it is found that the proportion of shares owned by government bureaucrats is significantly and positively related to Tobin's Q. This result suggests that the market realizes the signalling effect of the presence of State shareholders. As pointed out by Sun, Tong, and Tong (2002), there are several potential benefits of government ownership, such as the government's political support and business connections, which are valuable and necessary to vitalize performance. Moreover, government ownership has an impact on investors' perceptions of firm value. It was expected that investors interpret high State equity holding as government confidence in a firm's post-listing performance and also as a business guaranty by the government (Mok & Hui, 1998). The impact of political connection on company performance is an important issue for China and the findings are inconclusive (Estrin, Hanousek, Kocenda & Svejnar, 2007). It is still a question for empirical inquiry as to whether the political connection is a 'grabbing hand' that expropriates firms for the benefit of politicians and bureaucrats (Shleifer & Vishny, 1997), or a 'helping hand' that provides benefits. The results in this thesis add evidence to the 'helping hand' hypothesis.

Chapter Four

Essay Two

This chapter explores empirical results regarding the implementation of an independent director system in China. Section 1 of the chapter introduces the essay and Section 2 describes the independent director system in China. Section 3 discusses the relevant literature and hypotheses, while Section 4 presents the data, the empirical tests, and the results, and Section 5 provides a conclusion.

4.1 Introduction

It is suggested that there are two main functions of a board: advising and monitoring (Adams & Ferreira, 2007; Raheja, 2005). Outside directors are generally considered to be more effective monitors than inside directors because it is in their interest to develop reputations as experts in decision making (Fama & Jensen, 1983). There is an increasing trend of outside director representation on boards in publicly traded companies. Between early 1993 and late 2000, at least 18 countries witnessed publication of reports that advocated or mandated a minimum number of outside directors on boards (Dahya & McConnell, 2005). Gordon (2007) reported there has been a steady increase in the representation of outside directors on the boards of US firms, from approximately 20% in 1950 to approximately 75% in 2005.

Chinese firms had a little outsider representation on corporate boards before 2002. There were 1088 firms listed on the Shanghai and Shenzhen stock exchanges in 2000, but only 92 firms appointed independent directors onto their boards. In 2001, there were 1160 listed firms, and the number of firms having independent directors on their boards had increased to 323. The Guidelines launched on August 16, 2001 mandated that at least two members of the board of directors in each of China's listed firms possess experience as independent directors by June 30, 2002, and by June 30, 2003 at least one-third of any board was required to be composed of independent directors.

Using a sample of 494 Chinese listed companies that have begun to recruit independent directors in 2002 [13], this study tackles two empirical questions. First, I explore the determinants of board structure in China. Corporate board structure determinants and their impact on firm performance is one of the most fundamental issues in the corporate governance literature. While several empirical studies have examined the determinants of board structure, they have mainly focused on US firms. Guest (2008) provided an extensive review of the main findings of this research. However, there is scant knowledge of trends in countries that have different institutional and regulatory systems, and there is a particular lack of empirical evidence from China.

Secondly, I explore the outcome of the implementation of an independent director system in China, and provide further evidence of the advisory role of independent directors suggested by Coles, Daniel and Naveen (2008). It was argued by Agrawal and Knoeber (1996) that the monitoring role played by outside directors depends on the relative strength of other substitute governance mechanisms. Guest (2008) suggested that UK boards play a weak monitoring role due to factors such as the ineffective enforcement of directors' legal duties and the strong role of institutional investors. In particular, it was suggested that ownership concentration is higher in the UK, while US firms have a dispersed ownership structure. Chinese listed firms tend to have a highly concentrated ownership structure and insider-controlled boards (Lin, 2004). In addition, up to this point in time, the managerial labour market has remained underdeveloped in China; there is not an efficient mechanism

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[13] Chinese firms had little outsider representation on corporate boards before 2002. As the 2001 Guidelines defined precisely the role of the independent director in China, I choose to collect a sample of selected 494 firms that have begun to appoint independent directors in 2002.

for stimulating the independent directors working on behalf of small shareholders. Therefore, I expect that independent directors would not play a monitoring role in China.

The monitoring role of the board has been studied extensively. However, the advisory role of the board has received far less attention (Adams & Ferreira, 2007; Coles, Daniel & Naveen, 2008). Coles, Daniel and Naveen argued that firms with greater advising requirements need more directors on their boards, specifically more outsiders. Their empirical results showed that increasing board size, specifically adding outsiders can add value in complex firms. Chinese listed firms, in particular, need advice because traditionally they are administratively governed and large in size, with top executives who are normally nominated by the government and are not experts in management skills.

It is stated in the Guidelines that besides meeting the requirements of independence, independent directors in China are required to have basic knowledge concerning the operation of listed companies and to be familiar with the relevant laws and regulations. In addition, they need to have more than 5 years' work experience in law, economics, or other fields relevant to their performance and the duties of an independent director. Moreover, independent directors should have enough time in their schedules to perform their duties effectively. I expect that in China, large and diversified firms which have greater need for advice and expertise would have larger boards with more independent directors. Moreover, large and diversified firms would reap advantages from having larger boards with more independent directors on them.

4.2　The independent director system in China

4.2.1　Overview of Chinese corporate governance practices

Corporate governance is defined as a response to agency problems that arise from the separation of ownership and control in a corporation (Boubakri, Cosset & Guedhami, 2005b). One characteristic of Chinese corporate governance is that the majority of listed companies are original SOEs. At the end of 2000, there were 1088 listed companies on both exchanges, of which over 900 were originally SOEs; of the 1160 listed companies at the end of 2001, approximately 1103 were originally SOEs (Clarke, 2006). Chinese corporate governance was developed with the reform of SOEs and based on the requirements involved in setting up a modern corporate system. Before the implementation of the Guidelines, the reform process could be roughly divided into two stages, described below.

According to Liu and Gao (1999), the reform process of China's SOEs officially started with the third Plenum of the eleventh Central Committee of the Communist Party of China (CPC) in December 1978, and the first stage of the reform lasted from 1978 to 1992. From the establishment of People's Republic of China until 1978, almost all enterprises in China were fully State-owned. These enterprises were administratively governed, and the SOEs were not run like corporations, but as government organs. The government organized the whole administration of the firms, including the nomination of managers, the allocation of production elements, and the price of production. SOEs had no decision-making power over production and operation, and no corporate governance structure existed.

After the third Plenum of the eleventh Central Committee of the Communist Party of China in December 1978, SOEs were empowered gradually. In 1984, China's first joint stock company, Beijing Tianqiao Co., Ltd, was formed. In 1986, Shanghai Feile Acoustics Co., Ltd became the first company to offer its shares publicly. With the establishment of the Shanghai Stock Exchange in December 1990 and the Shenzhen Stock Exchange in July 1991, more and more SOEs were transformed into publicly listed companies. In 1992, the Chinese Security Regulatory Commission (CSRC) was established to strengthen supervision over the stock exchange markets and the listed companies. In the first stage, the major objective was to reform the centrally planned system incrementally, such that incentives were improved and the scope of the market concerning resource allocation was increased (Qian, 2000).

Although the SOEs were transformed into corporations gradually, the corporate governance of the firms was still far from effective. Corporate reform in China had just begun and still retained the traditional SOE governance model. The controlling right was still in the government's hand, and top management was still nominated by the government. Many listed firms established the "3-committee system" (i.e., the shareholders' general meeting, the board of directors, and the board of supervisors), but these roles were not played efficiently.

The second stage of the reform extended from 1993 to 2000, with the promulgation of the Company Law of the People's Republic of China. In November 1993, "the Decision on Issues Concerning the Establishment of a Socialist Market Economic Structure"[14] was

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[14] For the full text of the "Decision", see China Daily, November 17, 1993.

adopted at the Third Plenum of the Fourteenth Party Congress in China, which formally introduced the modern corporate system to the SOEs. The major reform objectives of the system include transforming the SOEs into corporations with clearly established ownership, well-defined rights and responsibilities, separated government/enterprise relations, and scientific management. In order to move the establishment of the modern corporate system forward, the Corporate Law was launched in December 1993. It mandated that to be publicly listed, a company must take the corporate form of a joint stock company. Moreover, the Corporate Law standardized the organization and operation of companies, and stipulated the functions and responsibilities of the shareholders' general meeting, the board of directors, and the board of supervisors.

However, the corporate governance practices in listed companies continued to be inappropriate, even though the Company Law and a series of laws and regulations had been implemented, including the Securities Law promulgated by the Standing Committee of the Ninth National People's Congress (NPC) in late 1998. Firstly, the ownership structure of the listed firms remained inefficient because the State continued to hold substantial shareholdings in listed firms. At the end of 2001, the State was in ultimate and absolute control of 81.6% of all publicly listed companies, holding direct control in 9.0% and indirect control in 72.6% (Liu & Sun, 2005). It was argued that State shareholders were not fully pursuing policies designed to maximise shareholders wealth and efficiency because of their various social and political objectives (Chen, Firth & Rui, 2006; Sun & Tong, 2003). Secondly, the board structure was inefficient because the State often controlled the make-up of the boards of directors, and the senior and junior management of these privatized SOEs were typically the same configuration that existed prior to

privatization (Chen, Firth & Rui, 2006). Thirdly, it was suggested that listed firms had frequently been expropriated by their controlling SOEs through related party transactions (Deng, He & Gan, 2006). Cheung, Jin, Rau and Stouraitis (2008) found there was a transfer of wealth away from the minority shareholders of publicly listed firms in China to their controlling SOE shareholders when the firms conducted related party transactions with the SOE. Moreover, shareholders' general meetings were dominated by controlling shareholders and, as a result, minority shareholders had no power related to corporate decision-making.

4.2.2   The establishment of an independent director system

On August 16, 2001, CSRC issued the Guidelines, which opened a new chapter in China's corporate governance development. The government's expectation was that the implementation of an independent director system would bring a solution to the corporate governance problems experienced by Chinese listed companies.

Firstly, the government expects that independent directors can work as monitors, protecting the interests of small shareholders. It is stated in the Guidelines that major related party transactions [15] should be approved by independent directors before being submitted to a board of directors for discussion; and that before independent directors make their judgment, an intermediary agency could be employed to produce an independent financial advisory report which would serve as the basis for their decision.

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[15] Related party transaction refers to transactions that the listed company intends to conduct with the related party and whose dollar value exceeds RMB 3 million or 5% of the company's net assets as of a recent audit.

Moreover, independent directors are directed to express their independent opinions on nominations, appointments, or replacements of directors, as well as appointments or dismissals of senior managers. They can also express their independent opinions on events they consider to be detrimental to the interests of minority shareholders.

However, I argue that independent directors do not monitor top management in China, although it has been suggested that the fundamental impetus behind the introduction of independent directors in China was to protect small shareholders from exploitation by dominant shareholders (Clarke, 2006). First, it is stated in the Guidelines that an independent director can be nominated by a board of directors, a supervisory board, or shareholders who independently or jointly hold more than 1% of the shares issued by the listed company, and the vote will take place at the shareholders' meeting. However, there are flaws in the way this process is carried out due to a key agency problem within China's corporate governance. Specifically, the highly concentrated ownership structure and the insider-controlled boards disrupt the balanced nomination process described in the Guidelines. According to Wei and Geng (2008), in 2007 the five largest shareholders within Chinese listed firms accounted for 56.46% of the total shares issued, with the largest shareholding being 42.18%. Kato and Long (2006) found that CEOs in 41% of China's listed firms simultaneously held executive positions in the controlling shareholder companies. Moreover, it was revealed that firms controlled by a corporate group engage in more related party transactions, which are seen to be a primary means of expropriation in China (Aharony, Wang & Yuan, 2005). Due to the highly concentrated ownership structure and the insider-controlled boards, the controlling shareholders have the dominant power to nominate independent directors; but because of their conflicting interests and

priorities, these shareholders are less likely to select independent directors who could be tough monitors of top management. A survey of 69 independent directors with Chinese listed firms[16] found that 39% of independent directors said they were just working as consultants for the firms, while only 21% said they were also serving as representatives on behalf of the small shareholders. In addition, the managerial labour market is still underdeveloped in China at this point. Ferris, Jagannathan and Pritchard (2003) suggested that current and former corporate executives are the largest source of outside directors. Although there are more than 1,000 companies listed in the Shanghai and Shenzhen stock exchanges, there is a lack of candidates for the position of qualified independent director in China. Studies have shown that scholars are the most popular group of candidates for the role of independent director in China (Tan, Li, Li, Wu & Liang, 2007; Yue, 2003). Clarke (2006) pointed out that the high proportion of scholars on boards suggests that firms recruit independent directors onto boards to satisfy the CSRC, and for the value of their prestige, but northing else.

Secondly, independent directors are expected to contribute by serving as expert advisors to CEOs by the government. China's listed firms have particularly demanding advisory requirements. Firstly, as previously discussed, Chinese enterprises have been administratively governed since the establishment of the People's Republic of China until 1978. Although 'going public' opened a new chapter for China's corporate governance development, the effectiveness of the mechanisms that were put in place depends on their long-term operation. Secondly, the top management of listed firms are generally politically connected and are reputed to possess a lack of management skills on the one hand (Fan,

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[16] http://business.sohu.com/20050306/n226294107.shtml

Wong & Zhang, 2007), and to pursue objectives that are political rather than profit oriented, on the other (Shleifer & Vishny, 1997). Fan, Wong, and Zhang (2007) found that almost 27% of the CEOs in their sample of 790 newly partially privatized firms in China were former or current government bureaucrats; moreover, firms with politically connected CEOs underperformed those whose CEOs were not politically connected by almost 18% based on 3-year post-IPO stock returns, and had poorer 3-year post-IPO earnings growth, sales growth, and change in returns on sales. Thirdly, large enterprises have consistently held an important position in China's industry (Nolan, 2001). Vice Premier Wu Bangguo said "Our nation's position in the international economic order will be to a large extent determined by the position of our nation's large enterprises and groups" (Wu, 1998, August 1). By 2004, there were 2,692 officially recognized large enterprise groups, which accounted for approximately 21% of China's exports, employed 26 million people, and held assets of $2 billion (National Bureau of Statistics of China, 2004). There are lots of particular challenges in reforming China's large firms, including upgrading the managerial skills of managers, upgrading the technical level of employees, and learning the game rules for international markets (Nolan & Zhang, 2003).

Generally, firms can seek professional advice either from directors on their boards, or directly from consulting firms. The consulting industry is well developed in Western countries, but it is still immature in China. There were about 130,000 consulting firms in China in 2000, among which only 10-15% provided management consultancy services[17]. Chinese firms, however, always rely on experts for professional advice. Chinese independent directors may have little incentive to monitor their CEOs, but they will still

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[17] http://finance.sina.com.cn/leadership/mzxyj/20060430/15202543181.shtml

endeavour to perform their duties as advisors to protect their own prestige. For example, Shanghai Belling Corp., Ltd (600171 [18]) is a company that focuses on electronic components and appliances. The company recruited two independent directors who are experts in the electronic area. The CEO of the company was highly satisfied with their performance because they provided valuable advice on investment and development strategies [19]. In this study, it is expected that independent directors are able to provide valuable advice to listed firms in China.

4.3   Literature and hypotheses

4.3.1   Board size and the implementation of an independent director system

The implementation of an independent director system in China has provided listed firms with a good opportunity to restructure their boards. In order to follow the Guidelines' instructions, firms have to meet the board requirements either by adding extra members to their boards, or by replacing the original board members.

Coles, Daniel and Naveen (2008) suggested there are several reasons for the growth in board size that occurs when firms recruit outside directors, including: (a) removing a director purely for downsizing reasons could affect the firm's reputation; (b) the CEO could incur personal costs when firing a board member with whom he/she has developed a professional and personal relationship; and (c) legal costs may also be incurred as a result

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[18] it refers to Shanghai Stock Exchange Code
[19] http://news.eastday.com/epublish/gb/thesis148/20010511/class014800011/hwz381737.htm

of firing directors before their term is complete. In December 1992, the Cadbury committee issued 'The Code of Best Practice', which recommended that publicly traded companies in the UK include at least three non-executive (i.e., outside) directors on their boards (Dahya, McConnell & Travlos, 2002). In the US, the Sarbanes–Oxley regulations also require that a majority of directors on the boards of US firms come from outside the organisation (Linck, Netter & Yang, 2008). Studies found that in response to the Cadbury committee recommendations and the Sarbanes–Oxley regulations, firms tended to increase board independence by adding outside directors, instead of removing inside directors (Dahya, McConnell & Travlos, 2002; Linck, Netter & Yang, 2008).

There are several factors that affect the costs involved in upsizing a board. Firstly, government regulations have an impact on firms' corporate governance. As such, The Company Law of the People's Republic of China (revised in 2005) state that share-holding companies can have a maximum of 19 members on a board[20]. Secondly, the market and the investors also have an impact on board size. It is expected that larger boards will be less effective than smaller boards (Jensen, 1993). Thirdly, there are dollar costs that result from adding members to a board. Based on a survey of 500 Chinese listed firms, the compensation of independent directors appears to average 31,900 yuan per year, with the highest compensation being 200,000 yuan per year and the lowest 5,000 yuan per year (Yue, 2003).

The Chinese independent director system was initiated by the government, and not the market; therefore, I expect that changes in the directorship of listed firms will be mainly

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[20] The Company Law of the People's Republic of China (revised in 2005), Article 109: A joint stock limited company shall set up a board of directors, which shall comprise 5-19 persons.

designed to meet the government's requirements. It is expected that in China, firms implement board independence by adding extra members instead of removing inside directors.

4.3.2   Board structure determinants for Chinese listed firms

Theories concerning the determinants of board structure can be divided into three groups (Boone et al., 2007; Guest, 2008): The "scale and complexity of operations hypothesis" argues that firms with diversified business segments, a long operating history, and complex operating structures prefer a larger board and more independent directors; the "monitoring costs and private benefits hypothesis" argues that board size and board independence are positively related to managers' private benefits and negatively related to the cost of monitoring; and the "CEO influence hypothesis" argues that powerful CEOs are able to negotiate a small board with a low outsider proportion.

As previously discussed, the monitoring function is not carried out effectively in China, so the "monitoring costs hypothesis" would be irrelevant for Chinese listed companies. Moreover, I expect that due to the high risk of expropriation by the government, the "private benefits hypothesis" would be irrelevant for Chinese listed companies as well. Stulz (2005) suggested that corporate insiders appropriate private benefits; therefore, they maximize their own welfare rather than that of outside investors, which creates "the agency problem of corporate insider discretion". He further indicated that when the risk of expropriation by the State is high, corporate insiders respond by cooperating more with the outside investors to minimize the chances such expropriation occurring. Other research

revealed that governments can have a "grabbing hand", leading them to expropriate shareholder wealth (Shleifer & Vishny, 1997). Cheung et al. (2008) found that in China, minority shareholders were expropriated in firms controlled by local government, and in firms with a large proportion of local government-affiliated directors on their boards. Under the high risk of being expropriated by the government, the corporate insiders have to give up their private benefits to cooperate with outside investors in China.

4.3.2.1 China-specific determinants

Concerning board structure determinants specific to China, two features have been identified as different from most other countries. Firstly, it is expected that ownership concentration would be negatively related to board size and the number of independent directors on a board because, as discussed previously, the largest shareholders have strong incentive to tunnel from listed firms to solve their owner problems. In order to go public, it is common for a Chinese State-owned enterprise to split its money-making business from the original company in order to establish a Share Holding Company. Under this approach, the original company is divided into two parts: a Share Holding company and a parent company. The valuable assets go to the Share Holding Company that is going to go public, whilst the money-losing assets are left with the parent company. After listing, the parent company is always the largest shareholder of the listed company. Deng, He and Gan (2006) found that in China, large shareholders engaged in a variety of expropriating activities, including asset sales, transfer-pricing of goods and services, and extracting trade credits.

H1. Ownership concentration is negatively related to board size and the number of independent directors on the board.

Secondly, Chinese companies always carry out internal restructuring before listing to make themselves competitive for achieving the limited quota and to be attractive to investors. For some SOEs, restructuring is aimed at establishing strategic alliances with other companies that go public together. For example, some medium-size companies choose to combine with other similar companies to meet the listing requirements in terms of capitalization. According to the Share Listing Rules of Shanghai Stock Exchange, companies applying for the listing of shares in the Shanghai Stock Exchange must meet several conditions. One of these states that the company's total share capital must not be less than RMB 50 million, the company must have been in business for more than 3 years, and it must have been making money over the last 3 consecutive years. I expect that firms going public with more than one sponsor would have a larger board, because each sponsor could nominate a couple of directors on boards for their interests.

H2. Firms going public with more than one sponsor will have a larger board.

4.3.2.2 Firm size and business diversification

4.3.2.2.1 Firm size

Coles, Daniel and Naveen (2008) indicated that complex firms need more advice, and firms can be complex along a variety of different dimensions. Using a unique sample of 81

publicly traded US firms that survived over the period from 1935 through 2000, Lehn, Sukesh, and Zhao (2005) found that more than 60% of the variation in board size could be explained by proxies for firm size. They argued that large firms have more demand for advice than small firms, including information about product markets, foreign markets, mergers and acquisitions, technology, and labour relations. Booth and Deli (1999) indicated that large firms are likely to have more external contracting relationships and, therefore, a larger board and more outside directors. Fich (2005) suggested that large firms are more likely to recruit outside executives in order to establish bonds with other companies. Lehn, Sukesh and Zhao (2005), Hillier and McColgan (2006), Boone et al. (2007), Linck, Netter and Yang (2008), and Coles, Daniel and Naveen (2008), as well as Guest (2008), all found that the size of the board and the proportion of outside directors on the board were significantly and positively related to the size of the firm.

4.3.2.2.2   Business diversification

It is suggested that there are two rationales behind diversification: agency theory, and resource building and utilization (Fama & Jensen, 1983; Lengnick-Hall & Wolff, 1999). According to agency theory, top managers may choose to pursue strategies to diversify their own risk, with a divergence of interests between top managers and shareholders (Fama & Jensen, 1983). During the transition from a command economy to a market-orientated economy, diversification has become a common strategy for Chinese firms (Li & Wong, 2003). Studies suggest that firms with diversified business segments prefer a larger board and more outside directors. A positive relationship between industrial diversification and the size of the board, as well as board independence, has been

documented empirically (Boone et al., 2007; Coles, Daniel & Naveen, 2008; Guest, 2008; Linck, Netter & Yang, 2008).

H3. Large and diversified firms will have a large board with more independent directors.

4.3.3   Board structure and firm performance

4.3.3.1   Board size and performance

Several empirical studies have confirmed the negative effect of board size on firm performance. Using a sample of 452 large US industrial corporations between 1984 and 1991, Yermack (1996) found a negative relationship between board size and firm value, in terms of Tobin's Q. Consistent with Yermack's findings, Eisenberg, Sundgren and Wells (1998), Conyon and Peck (1998), Mak and Yuanto (2005), Loderer and Peyer (2002), and Andrés, Azofra and López (2005) also reported a negative correlation between a firm's performance and board size in Finland, Malaysia, Singapore, Switzerland, Western Europe and North America, respectively. However, Coles, Daniel and Naveen (2008) argued that complex firms[21] stand to benefit from having more directors on their boards, because CEOs of complex firms have a greater need for advice and expertise. They found that the relationship between Tobin's Q and board size was driven by the differences between complex and simple firms. Although there was a negative relationship between board size and Tobin's Q for simple firms, in the case of complex firms that require more advice, Tobin's Q increased in board size.

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[21] As measured by firm size, leverage ratio, and business diversification.

To capture the advisory role of the board, an interaction variable: Board size × Advice, is conducted in this thesis. Advice is a dummy if the firm has a Base-10 logarithm of total sales higher than the 75th percentile of the sample, and at the same time, has the diversification dummy that equals one. Diversification is a dummy equals one if the firm has more than one business segmentation. It is expected that large and diversified firms will be advantaged by the appointment of more directors to their boards for their advisory benefit.

H4. Tobin's Q increases in board size for large and diversified firms.

4.3.3.2 Board independence and performance

The current literature contains much research that examines the relationship between board independence and firm performance. Many studies have yielded results that do not support the proposition that a high degree of board independence has a positive effect on firm performance (Agrawal & Knoeber, 1996; Bhagat & Black, 2002; Hermalin & Weisbach, 1991; Klein, 1998; Mehran, 1995). In fact, Hermalin and Weisbach (2003) provided an extensive review of the literature on this subject. However, the results are not all negative. Baysinger and Butler (1985) found that the proportion of outside independent directors has a mild effect on organisational performance, but this effect is delayed. Utilising data relating to 321 firms from Standard and Poor's 500, Barnhart and Rosenstein (1998) found stronger evidence of a curvilinear relationship between firm performance and the proportion of outside directors. Hossain, Prevost and Rao (2001) documented that firm performance was positively impacted by the presence of a proportion of outside members

on boards in New Zealand. Choi, Park and Yoo (2007) examined the impact of independent directors in Korea and found strongly positive effects on firm performance.

It is expected that independent directors would endeavour to perform their duties as advisors in order to protect and maintain their own prestige. To capture the advisory role of independent directors, an interaction variable, Board independence $\times$ Advice, is also conducted. It is expected that large and diversified firms would stand to benefit from recruiting more independent directors on their boards for the advisory benefit that is thus generated.

H4. Tobin's Q increases in board independence for large and diversified firms.

4.4 Data, methodology, and empirical results

4.4.1 Data

The sample in this chapter includes 494 companies listed in China that have begun to recruit independent directors in 2002. Chinese listed firms seldom appointed independent (non-management) directors before the Guidelines were put in place. As the Guidelines defined independent directorship precisely, those firms that have begun to recruit independent directors in 2002 are chosen for this study in order to measure the impact of the Guidelines. Information on the board's composition is collected, as is data on the largest shareholder, from the CSMAR China Listed Firm's Corporate Governance Research Database. The performance data come from the CSMAR China Stock Market

Financial Database. I collect by hand the information on the backgrounds of the 1087 independent directors that the sample firms recruited in 2002.

4.4.2   The determinates of board structure

4.4.2.1   Descriptive statistics

To examine whether the difference in board size between the pre- and post-Guidelines periods is statistically significant, the whole sample is grouped into three subsamples based on the average board size between 1999 and 2001. The small boards group consists of firms with a maximum of 7 members on their boards; the medium boards group contains firms with 7-11 members on their boards; and the group of large boards comprises firms with more than 11 members on their boards. A t test is used to examine whether the difference between the pre-Guidelines and post-Guidelines period is statistically significant. Small, medium and large-board subsamples are also examined in order to explore whether firms with different board sizes yield different results. Table 4.1 reports the descriptive statistics of the sample firms. The time period covered by the data is from 1999 to 2004. The whole of this period can be divided into two sub-periods: before the Guidelines (1999 to 2001) and after the Guidelines (2002 to 2004). It is stated in The Company Law of the People's Republic of China that the maximum tenure of any board is 3 years[22]. Therefore, each sample firm has the opportunity to restructure its board during the post-Guidelines period if they wish to.

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[22] The Company Law of the People's Republic of China (revised in 2005), Article 46: "The term of the directors shall be prescribed by the articles of association, provided that each term may not exceed three (3) years."

Table 4.1 Descriptive Statistics – t test on Board Size Difference between before and after Guidelines

	n	Board size		Board size difference	t Test
		Mean		Mean	
	n	Before Guidelines	After Guidelines	After-Before	
Whole sample	494	9.27	9.81	0.54	-5.8784***
Panel A : Based on board size					
Small board	130	6.59	8.52	1.94	-17.638***
Medium board	287	9.39	9.91	0.53	-5.597***
Large board	77	13.38	11.63	-1.75	6.113***
Panel B: Based on firm size					
Large firm	248	9.68	10.12	0.44	-3.111***
Small firm	246	8.86	9.51	0.65	-5.476***
Panel C: Based on ownership concentration					
Above-mean subsample	240	9.05	9.64	0.59	-4.312***
Below-mean subsample	254	9.49	9.98	0.49	-3.990***
Panel D: Based on restructure type					
Restructured subsample	131	9.91	10.31	0.4	-2.043**
Others	363	9.04	9.63	0.59	-5.750***

Note. This table reports the *t* test results on board size difference of the sample firms. The time period covered by the data is from 1999 to 2004. The whole of this period can be divided into two sub-periods: before the Guidelines (1999 to 2001) and after the Guidelines (2002 to 2004). Panel A reports the information based on board size. Small board refers to firms with a maximum of 7 members on their boards. Medium board refers to firms with 7-11 members on their boards. Large board refers to firms with more than 11 members on their boards. Panel B reports the information based on firm size. Firm size is equal to the Base-10 logarithm of total sales. Large firm refers to firms with a firm size larger than the sample mean, while small firm refers to firms with a firm size that is less than the sample mean. Panel C is based on ownership concentration. Above-mean subsample refers to firms whose largest shareholding (the proportion of shares held by the largest shareholder to the total number of shares issued) is larger than the sample mean. Panel D contains information on the restructure method. Restructured subsample contains the firms with more than 1 sponsor while listing. Others contains the firms have just 1 sponsor while listing.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

It is shown that the whole sample's 3-year average for board size increases from 9.27 to 9.81 after the Guidelines. Results of the *t* test suggest that for the whole sample, the post-Guidelines board size is significantly larger than the pre-Guidelines board size at the 1% level. The results in Panel A illustrate that for small-board and medium-board firms, the size of the samples increases by 1.94 and 0.53, respectively, while the size of large-board firms decreases by 1.75 during the post-Guidelines period. The *t* test results show that for the small-board and medium-board firms, the increase in board size is statistically significant, while for large-board firms, the post-Guidelines board size is significantly smaller that the pre-Guidelines board size. These results suggest that in general, firms meet the board independence requirements by adding extra members rather than removing inside directors. However, for the large-board subsample, it appears that companies choose to downsize their boards in order to avoid the negative signal effect. As discussed previously, a large board can signal inefficient corporate governance to the market.

Moreover, subsample analysis is undertaken based on firm size, ownership concentration, and restructure method. Panel B reports the results of this analysis according to firm size. Firm size is equal to the Base-10 logarithm of total sales. 'Large firm' refers to firms whose size is larger than the sample mean, while 'small firm' is applied to those firms whose size is less than that of the sample mean. Panel C reflects ownership concentration, and the 'above-mean' subsample contains the firms whose largest shareholding (the proportion of shares held by the largest shareholder to the total number of shares issued) is larger than the sample mean. Panel D contains information on the restructure method. Restructured subsample contains the firms have more than 1 sponsor while listing. The *t*

test results indicate that for all subsamples, the post-Guidelines board size is significantly larger than the pre-Guidelines board size at the 1% level.

It is a concern that the 3-year average post-Guidelines data may bias the estimate. To avoid such a bias, I compare the 3-year pre-Guidelines board size with the board size of 2002, 2003, and 2004, respectively. The *t* test results are robust; that is, the post-Guidelines board size is statistically larger than the pre-Guidelines board size.

4.4.2.2   Differences between subsamples concerning board composition

A *t* test is also used to examine differences on board size and board independence between various subsamples: large firms versus small firms, diversified firms versus non-diversified firms, firms with a controlling shareholding versus firms without a controlling shareholding, and firms with more than 1 sponsor while listing versus firms with just 1 sponsor while listing. It is expected that large and diversified firms, firms without a controlling shareholding, and firms with more than 1 sponsor will have larger boards.

The results of Table 4.2 show that large firms have larger boards than small firms during both the pre- and post-Guidelines time period. The mean difference is 0.84, 0.83, 0.78, 0.56, 0.62, and 0.67 from 1999 to 2004, respectively. These differences are all statistically significant at the 1% level. Diversified firms are shown to have a larger board than non-diversified firms, both before and after the implementation of the Guidelines. The difference is statistically significant during the pre-Guidelines period, but becomes statistically insignificant during the post-Guidelines time period. It is also shown that firms

Table 4.2 t Test on Board Size Difference between Subsamples

Panel A: Firm size

				Board size			
		1999	2000	2001	2002	2003	2004
	n	248	248	248	248	248	248
Large firms	Mean	9.86	9.69	9.48	10.22	10.13	10.01
	n	246	246	246	246	246	246
Small firms	Mean	9.02	8.87	8.7	9.67	9.51	9.34
Sector difference (large-small)	Mean difference	0.84	0.83	0.78	0.56	0.62	0.67
t test	t	-3.624***	-3.693***	-3.548***	-2.780***	-3.227***	-3.585***
Panel B: Diversification							
	n	262	262	262	262	262	262
Diversified firms	Mean	9.65	9.53	9.31	10.08	9.84	9.71
	n	232	232	232	232	232	232
Non-diversified firms	Mean	9.21	9	8.85	9.79	9.8	9.63
Sector difference (large-small)	Mean difference	0.44	0.54	0.46	0.29	0.04	0.08
t test	t	1.886*	2.377**	2.085**	1.425	0.196	0.402
Panel C: Ownership concentration							
	n	240	240	240	240	240	240
Above mean sub sample	Mean	9.15	9.07	8.92	9.75	9.67	9.51
	n	254	254	254	254	254	254
Below mean sub sample	Mean	9.71	9.48	9.26	10.13	9.97	9.83
Sector difference (Above - Under)	Mean difference	-0.56	-0.42	-0.35	-0.38	-0.3	-0.32
t test	t	2.392**	1.841*	1.56	1.892*	1.564	1.705*
Panel D: Restructure							
	n	131	131	131	131	131	131
Restructure sample	Mean	10.03	9.98	9.73	10.6	10.22	10.12
	n	363	363	363	363	363	363
Others	Mean	9.23	9.03	8.87	9.71	9.68	9.51
Sector difference (Above - Under)	Mean difference	0.8	0.95	0.87	0.88	0.54	0.61
t test	t	-2.854**	-3.534***	-3.477***	-3.938***	-2.499**	-2.863***

Note. This table presents the t test results on board size difference between subsamples. Firm size is equal to the Base-10 logarithm of total sales. Large firms refer to firms with the firm size larger than the sample mean, small firms refer to firms with the firm size less than the sample mean. Panel B is basing on diversification. Diversification is a dummy that equals 1 if the firm has more than one business segmentation. Panel C is basing on ownership concentration, which equals the proportion of shares hold by the largest share holder to the total number of shares issued. Panel D is basing on the restructure method. Restructured subsample contains the firms have more than 1 sponsor while listing. Others contains the firms have just 1 sponsor while listing.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

controlled by the largest shareholder have smaller boards during both the pre- and post-Guidelines time periods, and that these differences are typically statistically significant. Moreover, firms with 1 sponsor have smaller boards than firms with more than 1 sponsor. These differences are statistically significant during both the pre- and post-Guidelines time periods.

Table 4.3 reports the results of the *t* test regarding board independence difference between subsamples. Board independence is measured by the number of independent directors recruited to the board, and also the proportion of independent directors to the total number of directors on the board. The results show that large firms recruit more independent directors onto their boards than small firms, and the difference is statistically significant at the 1% level. However, I do not find any significant results for the other subsamples. In terms of the proportion of independent directors to the total number of directors on the board, I fail to find any constant significant results during the 2002 to 2004 time periods.

Overall, the *t* test results indicate that firms meet the requirements for board independence primarily to satisfy the government. First, it is found that sample firms upsize their boards after the implementation of the Guidelines. Second, there is no difference in terms of the proportion of independent directors on boards. The results show that the independence ratios of the sample firms were all around 33.3% in 2004, with only very minor differences. Moreover, there is evidence that firms construct boards to seek advices, as large firms have significantly larger boards than do small firms in both the pre- and the post-Guidelines time periods. Further, ownership concentration and the restructuring method before listing appear to be significant board size determinants.

Table 4.3 t Test on Board Independence Difference between Subsamples

Panel A: Firm size

		Independent Director			Independent Ratio (%)		
		2002	2003	2004	2002	2003	2004
	n	248	248	248	248	248	248
Large firms	Mean	2.27	3.26	3.38	23.12	32.83	33.89
	n	246	246	246	246	246	246
Small firms	Mean	2.13	3.07	3.13	22.93	32.34	33.81
Sector difference (large-small)	Mean difference	0.14	0.18	0.24	0.19	0.49	0.09
t test	t	-3.229***	-2.623***	-3.481***	-0.303	0.336	-0.315

Panel B: Diversification

		Independent Director			Independent Ratio (%)		
	n	262	262	262	262	262	262
Diversified firms	Mean	2.23	3.18	3.26	23.02	32.6	33.67
	n	232	232	232	232	232	232
Non-diversified firms	Mean	2.17	3.15	3.26	22.93	32.32	34.01
Sector difference (large-small)	Mean difference	0.05	0.03	0	0.09	0.28	-0.33
t test	t	1.201	0.401	-0.041	0.159	0.597	-0.789

Panel C: Ownership concentration

		Independent Director			Independent Ratio (%)		
	n	240	240	240	240	240	240
Above -mean subsample	Mean	2.21	3.11	3.2	23.54	32.45	33.85
	n	254	254	254	254	254	254
Below-mean subsample	Mean	2.19	3.22	3.31	22.45	32.49	33.81
Sector difference (Above - Under)	Mean difference	0.02	-0.1	-0.11	1.09	-0.04	0.05
t test	t	-0.536	1.468	1.562	-2.038**	0.092	-0.109

Panel D: Restructure

		Independent Director			Independent Ratio (%)		
	n	131	131	131	131	131	131
Restructured subsample	Mean	2.2	3.24	3.36	21.63	31.93	33.32
	n	363	363	363	363	363	363
Others	Mean	2.2	3.14	3.22	23.47	32.66	34.01
Sector difference (Above - Under)	Mean difference	0	0.1	0.14	-1.84	-0.73	-0.69
t test	t	0.053	-1.1971	-1.614	3.021**	1.399	1.448

Note. This table presents the results for the *t* test on board independence difference between subsamples. Independent Director refers to the number of directors on the board. Independent Ratio is measured as the proportion of independent directors on the board to the total number of directors.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

4.4.2.3   Panel data analysis – board structure determinates

The results of the *t* tests show that firm size, ownership concentration, and the restructuring method are important board size determinants, but the analysis do not control for other factors that may impact board structure. In this section, a panel data analysis is used to examine the determinants of board size and board independence. The panel data on board size cover 494 sample firms from the period 1999 to 2004, and the data on board independence cover the sample firms from the period 2002 to 2004, since my sample firms did not appoint independent directors onto their boards before 2002.

The initial regression specification for board composition was as follows:

$$\text{Board size} = \alpha + \beta_1 \text{Firm Size} + \beta_2 \text{Diversification} + \beta_3 \text{Leverage} + \beta_4 \text{Ownership} + \beta_5 \text{Restructure} + \beta_6 \text{ROA} + \beta_7 \text{CEOT} + \text{Year dummies} + \text{Industry dummies} + \varepsilon$$

$$\text{Board independence} = \alpha + \beta_1 \text{Firm Size} + \beta_2 \text{Diversification} + \beta_3 \text{Leverage} + \beta_4 \text{Ownership} + \beta_5 \text{Restructure} + \beta_6 \text{ROA} + \beta_7 \text{CEOT} + \text{Year dummies} + \text{Industry dummies} + \varepsilon$$

In addition to firm size, business diversification, and China-specific determinants, other factors, including debt ratio and the CEOs' influence variables, are controlled. Previous studies have shown that debt ratio is significantly and positively related to the size of the board and the proportion of outside directors on the board (Coles, Daniel & Naveen, 2008; Guest, 2008; Linck, Netter & Yang, 2008). Moreover, it has been argued that as outside directors are tougher monitors, CEOs are more likely to choose small boards with fewer

outside directors (Hermalin & Weisbach, 1998). Empirical studies confirmed that CEO tenure is negatively related to board size and the proportion of outside directors on a board (Boone et al., 2007; Coles, Daniel & Naveen, 2008). Further, it was suggested that firms with poor performance intend to appoint more independent directors (Bhagat & Black, 2002; Boone et al., 2007; Coles, Daniel & Naveen, 2008).

In this thesis, CEO Tenure and pre-Guidelines performance are used to capture the effect of CEO influence. Pre-Guidelines performance refers to return on assets (ROA), calculated as net income divided by total assets, while CEO Tenure is defined as the number of years the CEO has been with the firm. It is expected that CEO tenure and ROA are negatively related to board size and the number of independent directors on the board.

Following Coles, Daniel and Naveen (2008), my specifications are estimated using the ordinary least squares (OLS) model. Guest (2008) suggested that "endogenous problems can occur if board structure and firm specific measures are jointly determined by unobservable factors" (p. 60). In order to reduce endogenous problems, following Guest, year and industry dummy variables are used to control for industry effect and board structure trends. Because it is a concern that board structure is relatively persistent over time (Hermalin & Weisbach, 1998), following Guest, this serial correlation is controlled by estimating clustered robust standard errors, which are clustered in the firm level.

Table 4.4 reports summary statistics for the variables. It is shown that the maximum board size is 19, and the minimum board size is 5. The maximum number of independent directors on a board is 6, whilst the minimum number is 1. The average independent ratio

Table 4.4 Summary Statistics for Characteristics of Sample Chinese Firms

Panel A: Board size sample

	n	Mean	Std. Deviation	Min	Max	Percentile 25th	50th	75th
Board Size	2936	9.55	2.38	5.00	19.00	8.00	9.00	11.00
Firm Size	2936	8.77	0.50	6.76	10.81	8.44	8.78	9.09
Diversification	2936	0.53	0.50	0.00	1.00	0.00	1.00	1.00
Advice	2936	0.13	0.33	0.00	1.00	0.00	0.00	0.00
Leverage	2936	0.46	0.22	0.01	4.34	0.33	0.46	0.59
Ownership Concentration	2936	0.45	0.17	0.03	0.89	0.30	0.44	0.59
Bureaucrat	2936	0.10	0.31	0.00	1.00	0.00	0.00	0.00
Restructure	2936	0.27	0.44	0.00	1.00	0.00	0.00	1.00
ROA	2936	0.02	0.08	-2.53	0.46	0.01	0.03	0.05
CEO Tenure	2936	3.25	2.76	0.00	15.00	1.00	3.00	5.00
Location	2936	0.20	0.40	0.00	1.00	0.00	0.00	0.00
ΔGDP	2936	8.92	0.91	7.60	10.10	8.30	9.10	10.00

Panel B: Board Independence sample

	n	Mean	Std. Deviation	Min	Max	Percentile 25th	50th	75th
Board Independence	1471	2.87	0.85	1.00	6.00	2.00	3.00	3.00
Independent Ratio	1471	0.29	0.07	0.10	0.50	0.22	0.33	0.33
Firm Size	1471	8.86	0.52	6.85	10.81	8.52	8.88	9.19
Diversification	1471	0.53	0.50	0.00	1.00	0.00	1.00	1.00
Advice	1471	0.17	0.37	0.00	1.00	0.00	0.00	0.00
Leverage	1471	0.50	0.24	0.01	4.34	0.36	0.50	0.62
Ownership Concentration	1471	0.43	0.17	0.03	0.85	0.29	0.41	0.57
Bureaucrat	1471	0.09	0.29	0.00	1.00	0.00	0.00	0.00
Restructure	1471	0.26	0.44	0.00	1.00	0.00	0.00	1.00
ROA	1471	0.01	0.10	-2.53	0.46	0.01	0.02	0.04
CEO Tenure	1471	4.59	2.56	1.00	15.00	3.00	4.00	6.00
Location	1471	0.20	0.40	0.00	1.00	0.00	0.00	0.00
ΔGDP	1471	9.73	0.45	9.10	10.10	9.10	10.00	10.10

Note. Board size is measured as the number of directors on the board. Board Independence is equal to the number of independent directors on the board. Independent Ratio is calculated as the proportion of independent directors to the total number of directors on the board. Firm Size is measured as the Base-10 logarithm of total sales. Diversification is a dummy which equals1 if the firm has more than one business segment. Leverage is calculated as the total liabilities divided by total assets. Ownership Concentration is measured as the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy which equals 1 if the firm has more than one sponsor while listing. ROA refers to return on assets, calculated as net income divided by total assets. CEO Tenure is the number of years the CEO has been with the firm. Bureaucrat is a dummy if the largest shareholder in a firm is a government bureaucrat. Location refers to a dummy which equals 1 if a firm is located in Beijing, Shanghai, or Guangdong. ΔGDP refers to the real GDP growth within a particular year.

is 29.3%, with a maximum ratio of 50% and a minimum ratio of 10%. The average largest shareholding is 45%, with a maximum holding of 89% and a minimum holding of 3%. About 27% of firms have more than 1 sponsor while listing, and 53% of the firms have diversified their business segments. The longest CEO tenure is 15 years, and the smallest is 1 year.

Table 4.5 reports the empirical results regarding determinants of board size and board independence. The dependent variable of Model 1 is the Base-10 logarithm of the number of directors on the board, the dependent variable of Model 2 is the Base-10 logarithm of the number of independent directors on the board, and the dependent variable of Model 3 is the proportion of independent directors to the total number of directors on the board. The sample period for Model 1 is from 1999 to 2004, while the sample period for Model 2 and 3 is from 2002 to 2004 as the sample firms have begun to recruit independent directors from 2002,

Consistent with the hypothesis, Model 1 presents a positive relationship between firm size, the diversification dummy, and board size, and the coefficient of firm size is highly significant at the 1% level. When the Advice dummy is used to instead of firm size and diversification variable, a significantly positive relationship is found between the Advice dummy and board size. This result suggests that large and diversified firms prefer a larger board. Moreover, consistent with the hypothesis, it is found that there is a significantly negative relationship between the largest shareholding and board size. In addition, firms with more than one sponsor while listing have larger boards than firms with just one sponsor.

Table 4.5 Panel Data Analysis - Determinates of Board Structure

	Model 1		Model 2		Model 3	
	Board Size		Board Independence		Independent Ratio	
Advice	0.0380***		0.2514***		-0.0007	
Firm Size		0.0420***		0.3197***		0.0015
Diversification		0.0100		-0.0077		-0.0015
Ownership Concentration	-0.0505**	-0.0650***	-0.3395***	-0.4872***	-0.0013	-0.0027
Restructure	0.0306***	0.0310***	0.0582	0.0532	-0.0099***	-0.0100**
Leverage	0.0007	-0.0080	-0.0090	-0.0314	0.0051	0.0049
ROA	0.0033	-0.0380	0.5851***	0.3526***	0.0454***	0.0438***
CEO Tenure	0.0001	-0.0010	-0.0060	-0.0134	0.0002	0.0002
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.0741	0.0947	0.3379	0.3594	0.4658	0.4660
No. of observations	2936	2936	1471	1471	1471	1471

Note. This table reports the empirical results regarding the determinants of board structure. Firm Size is measured as the Base-10 logarithm of total sales. Diversification is a dummy which equals 1 if the firm has more than one business segment. Advice is a dummy if a firm has a Base-10 logarithm with total sales higher than the 75th percentile of the sample, and at the same time has a diversification dummy that equals 1. Ownership concentration equals the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy which equals 1 if the firm has more than 1 sponsor while listing. ROA refers to return on assets, calculated as net income divided by total assets. CEO Tenure is the number of years a CEO has been with a firm.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Model 2 presents a positive relationship between firm size and the number of independent directors on board, and shows the coefficient on firm size is highly significant at the 1% level. This result can be interpreted in two ways. First, large firms need more independent directors on their boards to provide an adequate quantity and quality of advice. Second, large firms have to appoint more independent directors to meet the "one third" requirements, and as they have large boards, they needed to recruit more independent directors to do so. When an Advice dummy is used, it is found that large and diversified firms recruit more independent directors to their boards. Moreover, a strong negative relationship is found between the largest shareholding and board independence, which suggests that the largest shareholders require an insider controlled board. Opposite to my hypothesis, firms with better performance in terms of ROA have more independent directors on their boards.

When the board independence ratio is used as the dependent variable in Model 3, firm size and the Advice dummy are not statistically significant anymore. This result indicates that the main incentive for listed firms to recruit independent directors is satisfying government requirements, as firm size, diversification dummy, and the Advice dummy are not significant determinants of the board independence ratio.

It is found that two variables are significant in terms of board independence ratio determinants. ROA is positively related to the independence ratio, while the Restructure dummy is negatively related to the independence ratio. As medium-size companies always have to go public under two-sponsor restructuring approach, they always have more inside directors on board because each sponsor will appoint several inside directors for their

interests. Therefore to satisfy the government policy becomes the major incentive to recruit independent directors as it costs to appoint directors on boards.

Guest (2008) raised the concern of reverse causality, wherein firm-specific explanatory variables are determined by board structure rather than vice versa. In particular, Yermack (1996) found that board size and the percentage of outsiders on a board have a negative impact on ROA. Following Guest, lagged values of ROA is used as an instrumental variable to compute a 2SLS regression. The results of the 2SLS regression, contained in Table 4.6, are very similar to the original estimates in Table 4.5.

Overall, the results suggest that regarding Chinese firms' board size, three factors are significant. The largest shareholders have strong incentives to organize a small and insider-controlled board. The Advice dummy, as a proxy of advisory demand, is also a significant determinant, as Chinese listed firms – especially large firms – have huge advisory needs. Moreover, the restructure method is relevant to board size, since firms with more than one sponsor while listing have shown to have a larger board than firms with just one sponsor.

However, in terms of the board independence ratio, it is found that firms performing well have a larger independence ratio, while firms with more than one sponsor while listing have a smaller independence ratio. Guest (2008) suggested that well-performing CEOs are able to negotiate a small board with a low outsider proportion; however, the empirical results show that well-performing CEOs appoint more independent directors onto their boards, probably in order to access their advice. It costs to recruit independent directors, and firms that perform well are more capable of covering these costs. Moreover, my

Table 4.6 2SLS Regression - Determinates of Board Structure

	Model 1		Model 2		Model 3	
	Board Size		Board Independence		Independent Ratio	
Advice	0.0353***		0.2517***		-0.0006	
Firm Size		0.0563***		0.3212***		0.0017
Diversification		0.0129**		-0.0057		-0.0012
Ownership Concentration	-0.0536***	-0.0679***	-0.3383***	-0.5839***	-0.0011	-0.0027
Restructure	0.0306***	0.0304***	0.0593	0.0543	-0.0097***	-0.0098***
Leverage	0.0165	-0.0734	-0.0105	-0.0337	0.0048	0.0045
ROA	0.1050	-0.4502	0.5827***	0.3480*	0.0450***	0.0431***
CEO Tenure	-0.0000	-0.0009	-0.0059	-0.0134*	0.0002	0.0002
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.0641	0.0077	0.3332	0.3546	0.4639	0.4637
No. of observations	2935	2935	1470	1470	1470	1470

Note. This table reports the results of the 2SLS regression. Firm size is measured as the Base-10 logarithm of total sales. Diversification is a dummy which equals 1 if the firm had more than 1 business segment. Advice is a dummy if a firm has a Base-10 logarithm with total sales higher than the 75th percentile of the sample, and at the same time has a diversification dummy that equals 1. Ownership concentration equals the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy which equals 1 if the firm has more than 1 sponsor while listing. ROA refers to return on assets, calculated as net income divided by total assets. CEO Tenure is the number of years a CEO has been with a firm.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

empirical results indicate that going public with more than one sponsor is not a good restructuring method because this way of combining companies results in a larger board with a lower board independence, which can signal inefficient corporate governance to the market.

4.4.2.4 Robustness test

The literature shows that monitoring costs and private benefits hypotheses are important board structure determinants, but the panel data analysis in this chapter does not include these variables. Moreover, besides firm size, industry diversification, and leverage ratio, other studies have used firm age to measure firm complexity. It is a concern that the omitted variables may have biased the results of the previous analysis.

I therefore undertake a cross-sectional analysis, including firm age, Tobin's Q, the R&D dummy, share return variance, and free cash flow, to carry out a robustness test. R&D refers to a dummy which equals 1 if the firm has "TECHNOLOGY" in its name, as a proxy of a high R&D firm. Share return variance refers to the stock return variance calculated as a standard deviation of monthly stock returns. Free cash flow is calculated as cash holdings divided by total assets. The results in table 4.7 show that all these variables are not significant in relation to board size and board independence ratio, except that high R&D firms have a smaller independence ratio. This result confirms the proposition that monitoring costs and private benefits variables are not relevant regarding board structure determinants of Chinese listed firms, because independent directors are not playing the role

of monitors, and the key agency problem of Chinese listed firms is the highly risk of

expropriation by both the controlling shareholders and the government.

Table 4.7 Determinates of Board Structure – Robustness

	Board Size		Independence Director		Board Independence	
	Coef	P	Coef	P	Coef	P
Firm Size	0.8788	0.0000	0.2516	0.0000	0.0008	0.8650
Diversification	-0.1162	0.4920	-0.0059	0.9070	0.0043	0.2290
Firm Age	-0.1359	0.7950	-0.0569	0.7140	-0.0006	0.9590
Leverage	0.3378	0.5480	0.2339	0.1620	0.0117	0.3190
Tobin's Q	-0.0051	0.9410	-0.0017	0.9350	0.0006	0.6660
Technology Dummy	-0.3790	0.2790	-0.2079	0.0460	-0.0121	0.0990
Share Return Variance	-4.8513	0.1740	-0.5864	0.5800	0.0973	0.1910
Free Cash Flow	0.9918	0.3760	0.6518	0.0500	0.0262	0.2630
ROA	1.1441	0.4640	0.4214	0.3640	0.0133	0.6840
CEO Tenure	-0.1196	0.6680	-0.0243	0.7690	0.0056	0.3390
Ownership Concentration	-1.5281	0.0090	-0.5087	0.0040	-0.0040	0.7470
Restructure	0.6233	0.0020	0.0692	0.2410	-0.0097	0.0200
Cons	3.0631	0.1660	0.8222	0.2100	0.2719	0.0000
Adjusted R2	0.0741		0.0642		0.0009	
No. of observations	494		494		494	

Note. Board size is measured as the 3-year average Base-10 logarithm of the number of directors on the board from 2002 to 2004. Independent Director refers to the 3-year average Base-10 logarithm of the number of independent directors on the board from 2002 to 2004. Board Independence is calculated as the 3-year average of the number of independent directors to the total number of directors on the board from 2002 to 2004. Firm Size equals the 3-year average Base-10 logarithm of total sales from 1999 to 2001. Firm Age is the Base-10 logarithm of the number of years since the firm is established. Leverage equals total liabilities divided by total assets. Diversification refers to a dummy variable which is equal to 1 if the firm has more than 1 business segment. Tobin's Q is measured as book assets minus book equity plus market value of equity, all divided by book assets. R&D refers to a dummy equals 1 if the firm has "TECHNOLOGY" in its name as a proxy of high R&D firms. Share Return Variance refers to the stock return variance, calculated as the standard deviation of monthly stock returns over the prior 12-month period. Free Cash Flow is calculated as the 3-year average cash holdings divided by total assets from 1999 to 2001. ROA refers to return on assets calculated as net income divided by total assets. CEO Tenure is the number of years a CEO has been with a firm. Ownership concentration equals the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy which equals 1 when a firm has more than 1 sponsor while listing.

4.4.3 Board structure and firm performance

4.4.3.1 The advisory role of the board

In this section, panel data analysis is used to examine the effect of board structure on firm performance. This panel data cover 494 firms for the period 1999 to 2004, and the dependent variable is Tobin's Q. Following Coles, Daniel and Naveen (2008), Tobin's Q is approximated as book assets minus book equity plus the market value of equity, all divided by book assets. A random-effects GLS regression is estimated. In particular, two interaction variables, Board size × Advice and Board independence × Advice, are constructed to capture the advisory role of the board.

The initial regression specification for firm performance is as follows:

$$\text{Tobin's Q} = \alpha + \beta_1 \text{Advice Dummy} + \beta_2 \text{ Board size} + \beta_3 \text{ Board independence} + \beta_4 \text{ Leverage}$$
$$+ \beta_5 \text{ Ownership concentration} + \beta_6 \text{ Restructure} + \beta_7 \text{ CEO tenure} + \beta_8$$
$$\text{Location} + \beta_9 \Delta \text{GDP} + \text{Year dummies} + \text{Industry dummies} + \varepsilon$$

A pairwise correlation matrix of all independent variables is presented in Table 4.8, and the issues regarding multicollinearity will be discussed below.

Table 4.8 Correlation Matrix Comparison of Sample Firms in China

	Board Size	Board Independence	Firm Size	Diversification	Advice	Leverage	Ownership Concentration	Restructure	ROA	CEO Tenure	ΔGDP
Board Size	1.0000										
Board Independence	0.0723	1.0000									
	0.0001										
Firm Size	0.1853	0.1904	1.0000								
	0.0000	0.0000									
Diversification	0.0545	0.0042	-0.0452	1.0000							
	0.0031	0.8221	0.0143								
Advice	0.1379	0.1264	0.4647	0.3564	1.0000						
	0.0000	0.0000	0.0000	0.0000							
Leverage	0.0259	0.1620	0.0791	0.0955	0.1344	1.0000					
	0.1601	0.0000	0.0000	0.0000	0.0000						
Ownership Concentration	-0.1140	-0.1013	0.1463	-0.2067	-0.0283	-0.1309	1.0000				
	0.0000	0.0000	0.0000	0.0000	0.1253	0.0000					
Restructure	0.1448	-0.0168	-0.0085	0.0203	0.0245	-0.0571	-0.1210	1.0000			
	0.0000	0.3615	0.6438	0.2710	0.1848	0.0020	0.0000				
ROA	-0.0074	-0.0927	0.1583	-0.0017	0.0401	-0.4133	0.1197	0.0187	1.0000		
	0.6893	0.0000	0.0000	0.9277	0.0296	0.0000	0.0000	0.3102			
CEO Tenure	0.0573	0.5057	0.2264	-0.0081	0.0819	0.0017	-0.0147	-0.0081	-0.0019	1.0000	
	0.0019	0.0000	0.0000	0.6625	0.0000	0.9255	0.4249	0.6602	0.9161		
ΔGDP	0.1073	0.9236	0.2005	0.0047	0.1322	0.1757	-0.1122	-0.0021	-0.1201	0.5329	1.0000
	0.0000	0.0000	0.0000	0.7997	0.0000	0.0000	0.0000	0.9115	0.0000	0.0000	

Note. This table provides pairwise correlations of the variables of essay two. Board Size refers to the number of directors on the board. Board Independence refers to the proportion of independent directors to the total number of directors on the board. Firm size equals the Base-10 logarithm of total sales. Diversification is a dummy which equals 1 when the firm has more than 1 business segment. Leverage refers to debt ratio, calculated as the total liabilities divided by total assets. Ownership concentration is the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy which equals 1 if a firm has more than 1 sponsor while listing. ROA refers to return on assets calculated as net income divided by total assets. CEO Tenure is the number of years a CEO has been with a firm. ΔGDP refers to real GDP growth within a particular year.

Table 4.9 reports the regression results of the analysis on the relationship between board structure and firm performance. Model 1 shows that there is a significantly negative relationship between board size and Tobin's Q, and a negative relationship between the proportion of independent directors on a board and the firm's performance. Moreover, the Advice dummy is significantly and negatively related to a firm's performance.

Moreover, it is found that firms with just one sponsor while listing perform better than firms with more that one sponsor. It is expected that CEO tenure would be positively related to Tobin's Q, because long-tenured CEOs should accumulate a deeper knowledge of their firm's environment, and therefore acquire more firm- and job-specific skills (Simsek, 2007). However, it is found that CEO tenure is significantly and negatively related to Tobin's Q. Moreover, firms located in Beijing, Shanghai and Guangdong achieve significantly higher performance than those locate in other cities.

It was suggested that multicollinearity is a problem because it undermines the statistical significance of an independent variable (Mansfield & Helms, 1982). Table 4.8 shows that board size is highly correlated with the Advice dummy. So, it is a concern that the results in Table 4.9 may be undermined due to this correlation. However, the results show that the coefficients on board size and the Advice dummy are all significant at the 1% level, although multicollinearity exists. So, these results add evidence to the argument that generally firm size is negatively related to performance.

Model 2 reports the results when the interaction variables Board size × Advice and Board independence × Advice are involved. It is shown that the coefficients on Board size and

Table 4.9 An Analysis of Board Structure and Efficiency for Sample Chinese Firms, 1999-2004

	Model1	Model2	Model3	Model4	Model5	Model6
			Dependent variable: Tobin's Q			
Advice	-0.2209**	-0.9190				
Firm Size			-1.1226***	-2.7010***	-1.1227***	-2.7319***
Diversification			-0.0791	-0.0750	-0.5881	-0.5916
Board Size	-0.6410**	-0.6666***	-0.2794	-10.0189***	-0.6100	-10.6371***
Board Independence	-0.7289	-0.9483	-0.3420	-26.5304***	-0.2423	-26.3989***
Board Size × Advice		0.3452				
Board Independence × Advice		1.5642***				
Board Size × Firm Size				1.1041***		1.1381***
Board Independence × Firm size				2.9560***		2.9466***
Board Size × Diversification					0.5605	0.5527
Board Independence × Diversification					-0.2148	-0.1136
Leverage	0.1104	0.1258	0.2028*	0.2772**	0.2078*	0.2792**
Ownership Concentration	0.0850	0.0850	0.4037**	0.4154*	0.4068*	0.4178*
Restructure	-0.2463**	-0.2448**	-0.2398***	-0.2446***	-0.2454***	-0.2502***
CEO Tenure	-0.0889***	-0.0895***	-0.0582***	-0.0617***	-0.0585***	-0.0620***
Location	0.2949**	0.3075***	0.4507***	0.4426***	0.4480***	0.4396***
ΔGDP	-0.2507***	-0.2434***	-0.2267***	-0.1939**	-0.2236***	-0.1912**
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.2916	0.2951	0.4107	0.4372	0.4104	0.4370
No. of observations	2936	2936	2936	2936	2936	2936

Note. This table reports the empirical results of the analysis on the relationship between board structure and firm performance. Firm Size is the Base-10 logarithm of total sales. Diversification is a dummy which equals 1 if the firm has more than 1 business segment. Advice is a dummy when the firm has a Base-10 logarithm of the total sales higher than the 75th percentiles of the sample, and at the same time has a diversification dummy equals 1. Location refers to a dummy equal to 1 if a firm is located in Beijing, Shanghai, or Guangdong. ΔGDP refers to real GDP growth within a particular year.* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Board independence are significantly negative, and the coefficient on the Advice dummy is negative ($\beta = 0.9190$). However, the coefficient on Board size × Advice is positive, and the coefficient on Board independence × Advice is significantly positive ($\beta = 1.5642$, significant at the 1% level). This result indicates that independent directors can add value for large and diversified firms.

Model 3 reports the results when firm size and the Diversification dummy are involved to instead of Advice dummy. Sun and Tong (2003) argued that large SOEs have a larger market share and more market power, but they also encounter more redundancy and substantial agency problems, which are detrimental to a firm's performance. Consistent with Sun and Tong, it is found that firm size is significantly and negatively related to a firm's performance. Moreover, the Diversification dummy has a negative impact on Tobin's Q.

Model 4 presents the results of involving the interaction variables Board size × Firm Size and Board independence × Firm Size. The coefficient on Firm Size is still negative ($\beta = -2.7010$, significant at the 1% level). However, the coefficients on Board size × Firm Size and Board independence × Firm Size are both significantly positive. This result confirms my hypothesis that for large firms, Tobin's Q increases in board size and board independence, as large firms tend to need more advice.

Model 5 presents the results when the interaction variables Board size × Diversification and Board independence × Diversification are involved. I fail to find a positive effect from the presence of a large board and a large independence ratio for diversified firms. In Model

6, when Board size × Firm Size, Board independence × Firm Size, Board size × Diversification and Board independence × Diversification are all involved, the coefficients on Board size × Firm Size and Board independence × Firm Size are still significantly positive at the 1% level. These results indicate that compared with diversified firms, large firms are particularly advantaged by having a large board with more independent directors.

4.4.3.2 Robustness test

A robustness test is undertaken using Scholar, which is the proportion of scholars as independent directors on the board, instead of the variable Board independence. I hand collect information on the backgrounds of the 1087 independent directors recruited by the sample firms in 2002 through SINA Finance (http://finance.sina.com.cn/stock/). Consistent with other studies, it is shown that scholars in universities or research institutions make up the largest group of independent directors in China, with 47.29% of the independent directors in my sample being scholars. In order to capture the advisory benefit of having scholars on a board, an interaction variable Scholar × Firm Size is constructed. It is expected that Tobin's Q would increase in the proportion of scholars on boards of large firms, which need more advice.

Table 4.10 reports the empirical results regarding the OLS test on the effect of the proportion of scholars as independent directors on boards. Model 1 of Table 4.10 reports that the coefficients on Firm Size and Scholar are negative and highly significant. Model 2 of Table 8 presents the results when the interaction variable Scholar × Firm Size is involved. The coefficient of Scholar is significantly negative (β = -23.220, p= 0.000), and

the coefficient of Firm Size remains significantly negative (β = -1.027, p= 0.000). However, the coefficient of Scholar × Firm Size becomes significantly positive (β = 2.532, p= 0.000). This result indicates that although scholars are negatively related to Tobin's Q, they add value to large firm, which need more advice as compared to small firms.

Table 4.10 An Analysis of the Effect of the Scholar Variable on the Efficiency of Sample Chinese Firm

	Dependent variable: Tobin's Q			
	Model 1		Model 2	
	Coef.	P>|t|	Coef.	P>|t|
Scholar	-0.997	0.008	-23.220	0.000
Firm Size	-0.739	0.000	-1.027	0.000
Firm Size × Scholar			2.532	0.000
Board Size	-0.006	0.987	-0.004	0.991
Leverage	0.041	0.713	-0.013	0.902
CEOT	-0.319	0.004	-0.344	0.002
Location	0.273	0.002	0.289	0.001
Ownership Concentration	0.284	0.164	0.334	0.098
Restructure	-0.290	0.000	-0.298	0.000
Constant	8.628	0.000	11.162	0.000
n	494		494	
Adjusted R2	0.2545		0.2743	

Note. This table reports the empirical results of an analysis of the effect of Scholar on firm efficiency. Scholar refers to the proportion of scholars on a board as independent directors. Firm Size is measured as the Base-10 logarithm of sales. Board Size is equal to the Base-10 logarithm of the number of directors on the board. Leverage equals total liabilities divided by total assets. CEOT is equal to the Base-10 logarithm of the number of years a CEO has been with a firm. Location is a dummy equals 1 if a firm is located in Beijing, Shanghai, or Guangzhou. Ownership Concentration is the proportion of shares held by the largest shareholder to the total number of shares. Restructure is a dummy equalling 1 when the firm has more than 1 sponsor while listing.

4.5 Conclusion

It is suggested that independent directors, as they are elected by shareholders, are supposed to monitor a firm's managers in view of the shareholder's interests (Fama & Jensen, 1983). Essay 2 of this thesis explores the empirical results of analyses concerning the implementation of an independent director system in China.

The determinants of board structure in Chinese listed firms are examined. It is identified that there are two primary incentives for Chinese listed firms to recruit independent directors on their boards. The first incentive is to satisfy the government, and it is found that Chinese listed firms meet requirements concerning board independence by adding extra members onto their boards, rather than replacing their original inside directors. Moreover, there is no difference between subsamples in terms of the board independence ratio. The results show that the independence ratios of the sample firms are all around 33.3%, with only very minor differences. Second, firms recruit independent directors for their advisory requirements. It is found that large and diversified firms have large boards; in addition, Tobin's Q increases in board size and board independence especially for large firms. This result contributes to the existing literature on the advisory role played by outside directors. Moreover, it is shown that the largest shareholders of listed firms have strong incentives to organize a small and insider-controlled board, while, firms with more than one sponsor while listing have a larger board than firms with just one sponsor.

Regarding the determinants of board independence ratio (the proportion of independent directors to the total number of directors on the board), it is found that well performing

firms have larger independence ratios, while firms with more than one sponsor have smaller independence ratios.

For the efficiency of independent directors, it is found that there is a significantly negative relationship between board size and Tobin's Q. In addition, a negative relationship is found between the proportion of independent directors on a board and the firm's performance. Furthermore, it is indicated that going public with more than one sponsor is not an optimal restructuring method, because combining the companies in this way results in a larger board with a smaller independence ratio, and it has been found that the Restructure dummy is significantly and negatively related to Tobin's Q.

Chapter Five

Essay Three

This chapter focuses on the relationship between independent directors' characteristics and firm performance in China. In particular, I provide answers to the question, "Who are the independent directors in China and how efficient are they within their firms?" In addition, I examine whether independent directors monitor top management in terms of related party transactions, which have been identified to be the real means of expropriation in China (Aharony, Wang & Yuan, 2005). Section 1 of the chapter introduces the essay, and Section 2 discusses the literature and hypothesis. Section 3 presents the data, the empirical tests, and the results; and Section 4 provides the conclusion.

5.1   Introduction

Although a growing number of empirical studies have explored the value of outside directors, there is little research focused on their specific characteristics. It is therefore interesting to investigate the reasons why firms appoint outside directors with different characteristics, and the ways in which some outside directors perform better than others.

Resource dependence theory indicates that outside directors should provide important resources to firms (Boyd, 1990). Ferris, Jagannathan and Pritchard (2003) suggested that current and former corporate executives are the largest source of outside directors because of the experience and prestige they have acquired while running their firms. It was found that one third of large US firms had a banker on their boards (Kroszner & Strahan, 2001), making available benefits such as the provision of expertise to management, enhanced access to capital, and the provision of monitoring superior to loan covenants (Byrd & Mizruchi, 2005). Agrawal and Knoeber (2001) suggested that firms which rely more heavily on governmental decisions are more likely to appoint outside directors with backgrounds in politics and law. Moreover, accountants or lawyers are more likely to be appointed during periods of financial distress (Gilson, 1990).

I propose that Chinese listed firms would recruit independent directors for the resources and/or protection they can provide, rather than for their ability to monitor top management. Chinese firms prefer such types of connection, due to the importance of *guanxi* in China. Gu, Hung and Tse (2008) suggested that *guanxi* refers to the durable social connections

and networks a firm uses to exchange favours for organizational purposes. It was argued that since *guanxi* goes deep as a governance mechanism in China, Chinese managers are likely to consistently use *guanxi* as a substitute for formal institutional support (Xin & Pearce, 1996).

This study includes 494 Chinese listed firms that have begun to recruit independent directors in 2002. The background information on these firms' independent directors, who were recruited between 2002 and 2004, is hand-collected through SINA Finance (http://finance.sina.com.cn/stock/). The independent directors are grouped into scholars, commercial bankers, retired bureaucrats, politically related outsiders, certified public accountants, certified lawyers, executives with overseas working experience, and others.

It is found that Chinese listed firms particularly exhibit two sorts of *guanxi* provided by independent directors. First, consistent with the previous studies (Tan et al., 2007; Yue, 2003), scholars at universities or research institutions make up the largest group of independent directors in China – 43.76% of the independent directors in my sample are scholars. Traditionally, Chinese people respect authority, and 'Scholar status' itself can be a kind of authority there. Firms can get valuable advice on the one hand, and send out positive signals to the market on the other, by recruiting famous scholars. Second, Chinese firms prefer political connections. Fan, Wong and Zhang (2007) found that 27% of the CEOs in their sample of 790 partially privatized firms in China were former or current government bureaucrats. Xu and Zhou (2008) reported that among their sample firms (137 companies registered in Shanghai), 64% had at least one board member with career experience in Shanghai government. In my sample, nearly 14% of independent directors

have political connections, including 8.11% who are politically connected outsiders still working, and 5.77% who are retired bureaucrats.

5.2 Literature and hypotheses

5.2.1 Scholars on the board

Using a random sample of 500 Chinese listed companies, Yue (2003) reported that 45% of independent directors in China were university professors or researchers from institutes. Tan et al. (2007) also presented the fact that approximately 40% of the independent directors in their study sample were university scholars and researchers in China. It is expected that three reasons are behind the high recruitment of scholars to boards in China. Firstly, there is a lack of qualified candidates for independent directorships in China. Ferris, Jagannathan and Pritchard (2003) suggested that due to the experience and prestige that current and former corporate executives have acquired, they are the largest source of outside directors. However, the top management of Chinese listed firms are generally politically connected and they do not have a great deal of experience operating in market economies (Chen, Firth & Rui, 2006). So, China is different from the study of Jagannathan and Pritchard, which consisted of firms on COMPUSTAT database. Secondly, Chinese listed firms have an insider-dominated system of corporate governance, with both a highly concentrated ownership structure and an insider-controlled board. According to Wei and Geng (2008), in 2007, the five largest shareholders within Chinese listed firms accounted for 56.46% of the total shares issued, with the largest shareholding being 42.18%. In addition, Kato and Long (2006) found that CEOs in 41% of China's listed

firms simultaneously held executive positions in the controlling shareholder companies. Clarke (2006) pointed out that "the numbers appear to bear out the common stereotype of independent directors as perhaps well-meaning but ultimately ineffectual academics and celebrities brought onto boards for their prestige value and perhaps to satisfy the CSRC, but for little else" (p. 208). Thirdly, by recruiting famous scholars to their boards, listed firms are attempting to seek valuable advice while also sending out signals to the market that they wish to improve their corporate governance.

Although scholars are not efficient monitors, it is expected that they would endeavour to perform their duties as advisors to listed firms. Firstly, these scholars would provide expertise to CEOs to demonstrate their own prestige. Fama and Jensen (1983) argued that reputation is a factor in the market for directors, and scholars realize that as an independent director, success in a particular position will greatly boost their own prestige (Tan et al., 2007). Secondly, scholars will endeavour to provide advice relating to possible social links with CEOs. One argument states that many types of social ties exist between independent directors and CEOs in China. It is believed that the majority of independent directors are the friends or previous schoolfellows of CEOs and, therefore, the recruitment of scholars is just for 'window dressing' the board and nothing more. However, Westphal (1999) suggested that friendship ties between a CEO and an independent director could actually increase the board's loyalty to the CEO. Although such social ties may diminish board monitoring activities, they may increase a CEO's advice-seeking behaviour, and in fact friendship ties have been found to be positively related to the level of advice and counsel sought by CEOs (Westphal, 1999). Choi, Park and Yoo (2007) showed that in Korea, 25.1% of firms appoint academics as outside directors, a ratio that reaches 47.6% for

chaebol firms. They also found that the presence of academic directors was significantly and positively related to a firm's performance.

In order to capture the advisory role of scholars, an interaction variable Scholar $\times$ Advice is constructed. Advice is a dummy equals one when the firm's Base-10 logarithm of the total sales is higher than the 75th percentile of the sample, and in the mean time, the diversification dummy equals one. Diversification is made a dummy equals one if the firm has more than one business segment. It is expected that large and diversified firms will choose the advantage of appointing scholars to their boards to access the benefit of their advice.

H1. Tobin's Q increases in the presence of scholars on the boards of large and diversified firms.

5.2.2   Politically connected outsiders

Why do firms recruit board members with political connections? Agrawal and Knoebe (2001) argued that where politics is an important determinant of firm profitability, outside directors with backgrounds in government can help the firm because of their knowledge of government procedures and their insight into predicting government actions. Miwa and Ramseyer (2005) reported that in Japan, construction firms that specialize in public-sector civil-engineering projects and sell a large portion of their output to government agencies tend to appoint more retired government bureaucrats as directors. Hillman (2005) indicated that firms in more heavily regulated industries had more politicians on their boards. Choi,

Park and Yoo (2007) showed that in Korea, 22.5% of chaebol firms appointed former politicians and government officials as outside directors, compared to 11.2% of non-chaebol firms.

Do the political connections of board members add value to firms? The empirical results are mixed. Hillman (2005) found that the political connections of board members were significantly and positively related to market-based measures of performance, but they were not related to accounting-based measures of performance. Goldman, Rocholl and So (2009) found a positive abnormal stock return following the announcement of the nomination of a politically connected individual to a board in the US. However, Choi, Park and Yoo (2007) reported that the contributions of former politicians and government officials, although statistically insignificant, were negative.

As previously discussed, Chinese firms prefer to have political connections. The literature shows that politically connected firms in China take advantage of borrowing on preferential terms from State-owned banks, and receive help from government sponsors when they are in distress (Bai, Lu & Tao, 2006). Li, Meng, Wang and Zhou (2008) found that the Party membership of private Chinese firms has a positive effect on the firm's performance. Moreover, it appears Party membership helps private firms obtain loans from banks or other state institutions. Hu and Leung (2009) indicated there was evidence that when some Chinese SOEs encountered 'troubles' with their financial performance, the government appointed politicians to replace their CEOs. Following Fan, Wong and Zhang (2007), I identify a CEO's (or an independent director's) political connections by examining whether s/he is currently or was formerly an officer within the central or local

government, or within the military. It is expected that firms which are non-politically connected (dummied by whether the CEO is politically connected) will recruit more independent directors with political connections, and that non-politically connected firms will be advantaged by the appointment of politically connected independent directors to their boards.

H2. Tobin's Q increases in the presence of politically connected independent directors on the boards of non-politically connected firms.

5.2.3   Retired bureaucrats

Miwa and Ramseyer (2005) suggested it is possible that firms appoint retired bureaucrats to their boards as a form of deferred compensation for their collusion during past business activities. Yamori (1998) suggested that many bureaucrats who retire from the Ministry of Finance or the Bank of Japan are re-employed by the private financial institutions they had previously supervised and monitored. It has also been found that financial institutions with bureaucrat managers employ more employees than firms that do not have this type of manager, indicating the low efficiency of bureaucrat-managers. Choi, Park and Yoo (2007) reported that the contributions of former politicians were negative in Korea, although the effect was statistically insignificant. In China, retired bureaucrats cannot add value to firms because their political connections are not efficient enough following their retirement. Statistics show that individuals' social capital is reduced by half during the first two years of their retirement (Tan et al., 2007). It is expected that firms recruit retired bureaucrats as

a compensation for a long term relationship which has previously been in place and, as a result, Tobin's Q decreases in the presence of retired bureaucrats on the board.

H3. Tobin's Q decreases in the presence of retired bureaucrats on the board.

5.2.4   Commercial bankers

Byrd and Mizruchi (2005) asserted that the possible benefits of having commercial bankers on a board include provision of expertise to management, enhancement of access to capital, and provision of monitoring superior to that of loan covenants. Booth and Deli (1999) found that the presence of commercial bankers on a board was positively related to debt-financing and that while they did not sit on boards in order to monitor lending relationships, commercial bankers did supply expertise to firms. However, Guner, Malmendier and Tate (2008) found evidence that the presence of commercial bankers on a board enhanced a firm's access to external finance.

Bank loans, in addition to government contributions, were the sole financing source for Chinese firms before the establishment of the Shanghai and Shenzhen Stock Exchange in the early 1990s marked the beginning of a mixture of debt and equity financing throughout the Chinese corporate sector (Zou & Xiao, 2006). However, there are tight regulations on a firms' eligibility for 'rights offering', which include the firm having a favourable balance for the most recent 3 consecutive fiscal years[23]. Therefore, since the corporate bond market

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[23] The Administrative Measures for the Issuance of Securities by Listed Companies, which were adopted at the 178th executive meeting of the chairmen of China Securities Regulatory Commission on April 26, 2006, and which came into force as of May 8, 2006.

is currently undeveloped in China, bank loans still represent the most important source of financing. I identify those independent directors who either are currently or were formerly executives of a commercial bank as commercial bankers. It is expected that firms with a large debt burden will recruit more commercial bankers to their boards, and that Tobin's Q will increase for highly leveraged firms with commercial bankers on their boards.

H4. Tobin's Q increases in the presence of commercial bankers on the boards of highly leveraged firms.

5.2.5 Certified public accountants and certified lawyers

Qualified accountants are likely to be familiar with financial reporting from a senior management perspective, and it has been reported that over a quarter of all UK board members are professionally qualified accountants (Peasnell, Pope & Young, 1999). Agrawal and Knoeber (1999) suggested that firms involved in litigation prefer to recruit lawyers as outside directors, and later reported that lawyer-directors are more prevalent in larger firms, as well as those with higher costs for environmental regulation (Agrawal & Knoeber, 2001). It is expected that the presence of certified public accountants or certified lawyers on boards adds value to the firms because these directors are experts with professional knowledge on the one hand, and have a strong incentive to build their reputations, on the other.

H5. Tobin's Q increases in the presence of certified public accountants and certified lawyers on a board.

5.2.6 Executives with overseas working experience

Yermack (1996) suggested that a board member's experience with a directorship in another firm may be indicative of his/her reputation and ability, and that the presence of such a board member within the firm could enhance the firm's performance. Fich (2005) indicated that outside CEO-directors are sources of unique expertise and that firms with high growth opportunities are more likely to appoint the current CEO of another firm as an outside director in order to seek their expert advice. Fahlenbrach, Low and Stulz (2008) suggested that firms may seek to appoint an outside CEO to their board in order to 'buy into' a particular CEO's reputation and also to certify to the market that the firm is successful.

In this thesis, I do not group outside executives as a particular category because as previously discussed, the professional labour market in China is not yet developed and there is a particular lack of professional executives in China at the present time. Instead, a group of independent directors with overseas work experience is identified. As such, it is expected that Tobin's Q will increase in the presence of executives with overseas work experience on a board.

H6. Tobin's Q increases when executives with overseas work experience are present on a board.

5.3 Data, methodology, and empirical results

5.3.1 Data

This essay includes 494 Chinese listed firms that have begun to recruit independent directors in 2002. I collect by hand, through SINA Finance (http://finance.sina.com.cn/stock/), the background information of the independent directors who were recruited by my sample firms between 2002 and 2004. This information, including the directors' work experience, is provided under the 'Corporate Governance' section of each listed company. The whole sample sums up 4,228 firm-year observations. Other corporate governance data are collected from the CSMAR China Listed Firm's Corporate Governance Research Database, while the performance data are collected from the CSMAR China Stock Market Financial Database.

Table 5.1 presents a summary of information describing the independent directors whom the sample firms recruited between 2002 and 2004. Consistent with previous studies, it can be seen that scholars from universities or research institutions are the largest source of independent directors in China: 43.76% of independent directors in my sample are scholars. Moreover, it is found that 13.88% of independent directors are politically connected, including 8.11% who are politically connected outsiders, and 5.77% who are retired bureaucrats. Certified public accountants and certified lawyers comprise a similar proportion in my sample, accounting for 7.95% and 7.59%, respectively. In addition, 2.79% of independent directors are commercial bankers and 1.54% are executives with overseas work experience.

Table 5.1 Current and Previous Occupations of Independent Directors Recruited by Sample Chinese Firms

	Scholar	Accountant	Lawyer	Banker	Politics	Retired bureaucrat	International experience	Other
Whole sample	43.76	7.95	7.59	2.79	8.11	5.77	1.54	22.49
By Firm Size								
Large firms (75th Percentile)	45.18	8.45	7.34	2.98	8.02	7.70	1.30	19.04
Small firms (25% Percentile)	40.82	9.67	8.00	3.10	7.05	5.93	2.49	22.94
By Leverage								
Highly-leveraged (75th Percentile)	46.19	8.23	7.22	3.39	8.32	5.26	1.41	19.98
Low-leveraged (25th Percentile)	44.45	7.33	8.03	2.08	6.28	6.07	1.36	24.4
By Diversification								
Diversified firms	46.08	8.77	6.90	3.25	7.57	4.73	1.27	21.42
Non-diversified firms	42.67	7.54	7.92	2.40	8.38	7.13	1.76	22.19
By CEO								
Powerful CEOs (75th Percentile)	42.48	7.72	8.46	3.64	7.56	6.65	0.36	23.12
Non-powerful CEOs (25th Percentile)	45.58	8.62	7.11	3.71	8.12	4.21	2.22	20.43
By Political Connection								
PCEO	43.41	9.79	8.94	2.52	6.55	6.77	1.07	20.95
Non-PCEO	44.74	7.54	6.83	2.95	8.51	5.61	1.68	22.13
By Ownership Concentration								
Largest shareholding (75th Percentile)	42.48	7.72	8.46	3.64	7.56	6.65	0.36	23.12
Largest shareholding (25th Percentile)	41.52	10.05	7.85	1.92	8.74	4.83	2.41	22.67
By Largest Shareholder								
Largest shareholder is a bureaucrat	45.73	7.49	7.77	1.99	8.27	2.41	1.49	24.84
Largest shareholder is not a bureaucrat	44.24	8.23	7.37	2.91	7.94	6.28	1.52	21.50

Note. This table presents information on the independent directors recruited by the 494 sample firms between 2002 and 2004. Firms whose Base-10 logarithm of total sales is higher than the 75th percentile of the sample are recognised as large firms and firms lower than the 25th percentile of the sample are recognised as small firms. Firms with a debt ratio (total liabilities to total assets) higher than the 75th percentile of the sample are recognised as highly-leverage firms, and firms lower than the 25th percentile of the sample are recognised as low-leverage firms. Diversification is a dummy equals 1 if the firm has more than 1 business segment. Powerful CEO refers to firms whose CEO tenure is higher than the 75th percentile of the sample. Non-powerful CEO refers to firms whose CEO tenure is lower than the 25th percentile of the sample. Political connections are examined as to whether the CEO is currently or was formerly an officer of the central or local government, or in the military. Ownership concentration refers to the largest shareholding of the firms. Bureaucrats include central government or local governments, such as (a) government ministries, (b) government bureaus, (c) State asset-investment bureaus, (d) State asset-management bureaus, (e) State research institutes, and (f) State-owned banks.

Subsample analysis provides even more interesting profiles. It has been found that large firms[24], which have more advisory requirements, recruit more scholars to their boards: 45.18% of independent directors are scholars on large firms' boards, compared with 40.82% on small firms' boards. Similarly, diversified firms also recruit more scholars, with 46.08% of scholars on boards compared with 42.67% on non-diversified firms' boards.

Moreover, it is shown that in China, political connections are an important source for listed firms. Firstly, non-politically connected CEOs recruit more independent directors with political connections. Secondly, firms with powerful CEOs recruit more retired bureaucrats, and the recruitment can be seen as compensation for the long-term relationship they have previously established with them. Thirdly, firms without a government bureaucrat as the largest shareholder recruit more retired bureaucrats to their boards. Furthermore, highly leveraged firms recruit more commercial bankers and politically connected outsiders to their boards in order to gain easier access to outside capital, as suggested by Byrd and Mizruchi (2005).

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[24] Firms whose Base-10 logarithm of total sales is higher than the 75th percentile of the sample are recognised as large firms and firms lower than the 25th percentile of the sample are recognised as small firms. Firms with a debt ratio (total liabilities to total assets) higher than the 75th percentile of the sample are recognised as highly leverage firms, and firms lower than the 25th percentile of the sample are recognised as low leverage firms. Diversification is a dummy when the firm has more than one business segment. 'Powerful' CEOs refers to firms whose CEO tenure is higher than the 75th percentile of the sample. 'Non-powerful' CEOs refers to firms whose CEO tenure is lower than the 25th percentile of the sample. Political connections are examined as to whether the CEO is currently or was formerly an officer of the central or local government, or in the military. Ownership concentration refers to the largest shareholding of the firms. Bureaucrats include central government or local governments: (a) government ministries, (b) government bureaus, (c) State asset-investment bureaus, (d) State asset-management bureaus, (e) State research institutes, and (f) State-owned banks.

Overall, the findings are consistent with resource dependence theory which contends that Chinese listed firms recruit independent directors in order to build up connections with people who can provide useful resources and protection. It is found that listed firms in China particularly exhibit two types of connections provided by independent directors. Firstly, scholars in universities or research institutions are the largest source of independent directors. Secondly, nearly 14% of the independent directors in my sample are politically connected, which indicates that Chinese firms prefer political connections.

5.3.2 Independent directors' characteristics and firm efficiency

5.3.2.1 Panel data analysis

In this section, the effect of independent directors' characteristics on firm performance is examined utilizing the panel data analysis, with Tobin's Q as the dependent variable. Following Coles, Daniel and Naveen (2008), Tobin's Q is approximated as book assets minus book equity plus market value of equity, divided by book assets. Table 5.2 reports the summary statistics for the variables. It is shown that the maximum board size is 19 members and the minimum board size is 5 members. The maximum number of independent directors on a board is 6, whilst the minimum number is 1. The average independent ratio is 29.75%, with a maximum ratio of 50% and a minimum ratio of 10%. In addition, 27% of the firms have politically connected CEOs. The average largest shareholding is 43.03%, with a maximum holding of 84.97% and a minimum holding of 3.24%; additionally, approximately 9% of the largest shareholders are government

Table 5.2 Characteristic and Efficiency - Summary Statistics for the Variables

	n	Mean	Std. Deviation	Minimum	Maximum
Tobin's Q	1471	2.02	1.03	0.81	10.81
Scholar	1471	15.72	12.61	0.00	50.00
Accountant	1471	2.86	5.49	0.00	25.00
Lawyer	1471	2.73	5.46	0.00	37.50
Banker	1471	1.00	3.72	0.00	25.00
Politician	1471	2.91	6.21	0.00	37.50
Retired Bureaucrat	1471	2.07	5.45	0.00	25.00
International Executive	1471	0.55	2.69	0.00	25.00
Board Size	1471	9.82	2.17	5.00	19.00
Independent Director	1471	2.87	0.85	1.00	6.00
Independence Ratio	1471	29.75	7.17	10.00	50.00
Firm Size	1471	8.86	0.52	6.85	10.81
Leverage	1471	49.56	24.42	1.08	434.16
Ownership Concentration	1471	43.03	16.84	3.24	84.97
Bureaucrat	1471	0.09	0.29	0.00	1.00
CEO Tenure	1471	4.59	2.56	1.00	15.00
PCEO	1471	0.27	0.45	0.00	1.00
Board Meeting	1471	7.88	3.40	0.00	34.00
Supervisor Meeting	1471	3.70	1.84	0.00	25.00
Supervisor	1471	4.26	1.40	2.00	11.00
Employee Supervisor	1471	26.68	18.93	0.00	100.00

Note. This table reports the summary statistics for the variables. Scholar, Account, Lawyer, Banker, Politician, Retired Bureaucrat, and International Executive refer to the proportion of scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience on a board. Board Size refers to the number of directors on a board. Independent Director refers to the number of independent directors on a board. Independent Ratio refers to the proportion of independent directors to the total number of directors on a board. Firm Size is the Base-10 logarithm of total sales. Leverage refers to the debt ratio (total debt to total assets). Ownership concentration is the proportion of shares held by the largest shareholder to the total number of shares issued. Bureaucrat is a dummy equalling 1 if the largest shareholder is a government bureaucrat. CEO Tenure is the number of years the CEO has been with a firm. PCEO refers to a dummy variable that equals 1 when a firm has a politically connected CEO; otherwise, it equals 0. Board meeting refers to the number of board director meetings per year. Supervisor meeting refers to the number of supervisory meetings per year. Supervisor stands for the number of supervisors on a supervisory board. Employee supervisor stands for the proportion of employee supervisors to the total number of supervisors on a supervisory board.

bureaucrats. Moreover, the average debt ratio is 49.56%. The longest CEO tenure is 15 years and the shortest is 1 year. The average number of board meetings is 7.88 per year and the average number of supervisory meetings is 3.70 per year. The average number of supervisors on a board is 4.26, with the maximum number being 11 and the minimum number being 2. The average proportion of employee supervisors to the total number of supervisors is 26.68% and the maximum ratio reaches 100%.

The initial regression specification for the effect of independent directors' characteristics on firm performance is as follows:

Tobin's Q = α + β_1 Characteristics Dummy + β_2 Board size + β_3 Board independence + β_4 Firm Size + β_5 Leverage + β_6 Ownership concentration + β_7 Bureaucrat + β_8 CEO tenure + β_9 PCEO + β_{10} Board Meeting + β_{11} Supervisor Meeting + β_{12} Supervisor + β_{13} Employee Supervisor + ε

Table 5.3 reports the empirical results regarding the fixed effect analysis of the presence of independent directors with different characteristics on a board and the firm's efficiency. In Model 1, scholar, accountant, lawyer, banker, politician, retired bureaucrat and international executive, refer to dummy variables which equal 1 if a firm has on their board scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience, respectively.

Table 5.3 An Fixed Effect Analysis of the Presence of Independent Directors with Different Characteristics on the Boards of Sample Chinese Firms and the Boards' Efficiency

	Dependent variable: Tobin's Q							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Scholar	-0.167*	0.007						
Accountant	-0.282***		-1.831**					
Lawyer	0.043			0.010				
Banker	-0.079				-0.580			
Politician	-0.227**					-1.346**		
Retired Bureaucrat	0.110						1.363*	
International Executive	0.086							0.487
Control variables								
Independence Ratio	-0.325							
Board Size	-0.260	-0.325	-0.310	-0.325	-0.320	-0.291	-0.357	-0.331
Firm Size	-0.065	-0.105	-0.087	-0.105	-0.103	-0.105	-0.090	-0.104
Leverage	0.164	0.208	0.185	0.207	0.208	0.193	0.203	0.210
Ownership Concentration	0.381	0.431	0.367	0.432	0.437	0.478	0.435	0.439
Bureaucrat	0.127	0.104	0.105	0.104	0.104	0.115	0.108	0.100
CEO Tenure	-0.350***	-0.384***	-0.372***	-0.384***	-0.383***	-0.372***	-0.390***	-0.385***
PCEO	0.023	0.026	0.030	0.026	0.026	0.022	0.027	0.026
Board Meeting	-0.005	-0.006	-0.006	-0.006	-0.006	-0.006	-0.005	-0.006
Supervisory Meeting	0.022*	0.024*	0.025*	0.024*	0.024*	0.024*	0.023*	0.024*
Supervisor	0.516	0.534	0.500	0.534	0.528	0.559	0.490	0.533
Employee supervisor	-0.156	-0.156	-0.162	-0.156	-0.154	-0.155	-0.165	-0.154
Constant	4.226***	4.401***	4.288***	4.398***	4.385***	4.326***	4.334***	4.397***
Firms	494	494	494	494	494	494	494	494
Observations	1471	1471	1471	1471	1471	1471	1471	1471
Overall R^2	0.0716	0.0737	0.0705	0.0737	0.0732	0.0751	0.0705	0.0740

Note. This table reports the empirical results of a fixed effect analysis of the presence of independent directors with different characteristics on a board and the firm's efficiency. In Model 1, Scholar, Accountant, Lawyer, Banker, Politician, Retired Bureaucrat and International Executive refer to dummy variables which equal 1 if a firm has on their board scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience, respectively. In Models 2-8, Scholar, Account, Lawyer, Banker, Politics, Retired Bureaucrat, and International Executive, refer to the proportion of scholars, certified public accountants, certified lawyers, s, politically connected outsiders, retired bureaucrats, and executives with overseas work experience to the total number of directors on the board, respectively.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

The results show that the presence of scholars on a board is negatively related to Tobin's Q and this is statistically significant at the 10% level. Opposite to my hypothesis, the effect of having certified public accountants as board directors is also significantly negative. Choi, Park and Yoo (2007) suggested that in Korea, the effect of 'gray directors', defined as outside directors who appear to have current or potential business ties with the firm by virtue of their professions, such as lawyers, accountants, or bank executives, was negative. It was argued that there are a variety of possible ties between independent directors and CEOs in China and that these social ties significantly diminish board monitoring activities. The negative relationship between certified public accountants and Tobin's Q could be interpreted as the possible ties between accountants and CEOs. Moreover, it is found that the effect of having politically connected independent directors on a board is significantly negative at the 5% level. The contribution of lawyers, retired bureaucrats, and executives with overseas work experience is positive, but statistically insignificant.

It is found that CEO tenure is significantly and negatively related to Tobin's Q. One possible reason for this could be that CEO tenure increases a CEO's influence on the board, which may lead to more inferior projects. It is shown in Table 5.1 that compared with non-powerful CEOs (dummied by CEO tenure), powerful CEOs recruit more retired bureaucrats as compensation, while they recruit fewer executives with overseas work experience who could provide valuable advice to top management. Adams and Ferreira (2007) suggested that CEOs dislike monitoring by the board because they value exercising independent control.

Interestingly, it is found that the number of supervisory meetings per year is positively related to Tobin's Q. In China, which operates under the country's 'Company Law', companies have a two-tiered board system which includes a directory board and a supervisory board. Generally, the supervisory board is composed of employees and shareholder representatives and has the responsibility of monitoring the firm's accounting system and financial statements (Firth, Fung & Rui, 2007). It was argued that a supervisory board is inefficient in terms of overseeing a board of directors and managers because supervisors are not always experts (Lin, 2004). However, Firth, Fung and Rui (2007) found that in China, firms with larger supervisory boards had better earnings and higher quality financial statements, based on an auditor's opinion. There is a lack of empirical evidence of the efficiency of a two-tiered board system, and this would make an interesting topic for further research on supervisory boards in China.

The proportion of scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience on the boards, is used to regress on Tobin's Q as a test for robustness. The results are shown in Models 2 - 8 of Table 5.3. The results are robust regarding the significantly negative effect of certified public accountants and independent directors with political connections.

5.3.2.2   The interaction effect of independent directors on a board

The results of the fixed effect test suggest that the presence of scholars is significantly and negatively related to Tobin's Q, but it is expected that scholars can provide to firms, and

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hence add value to firms. In order to capture the advisory benefit of scholars on a board, an interaction variable Scholar × Advice is constructed. It is expected that Tobin's Q would increase for large and diversified firms (which need more advice) when scholars are present on their boards. Similarly, I construct the interaction variables Banker × Leverage in order to capture the incremental effect of commercial bankers on highly leveraged firms, and Politics × Non-PCEO in order to capture the incremental effect of politically connected independent directors on non-politically connected firms.

Model 1 of Table 5.4 presents the results when the interactional variable Scholar × Advice is involved. The coefficient of Scholar is significantly negative (β = -0.197, significant at the 5% level), and the coefficient of Advice is also negative. However, the coefficient of Scholar × Advice is positive (β = 0.220), although not statistically significant. This result indicates that scholars can add value to large and diversified firms, although I fail to find a significant result.

Model 2 of Table 5.4 presents the results from involving the interactional variable Banker × Leverage. It is shown that the coefficient of Banker becomes significantly negative (β = -0.951, significant at the 1% level). However, the coefficient of Banker × Leverage is significantly positive (β = 1.659, significant at the 5% level). This result indicates that highly leveraged firms are advantaged by recruiting commercial bankers to their boards. As previously discussed, compared with lower-leverage firms, highly leveraged firms recruit more commercial bankers as independent directors in order to enhance their access to capital.

Model 3 of Table 5.4 presents the results when the interactional variable Politics × Non-PCEO is involved. A significant effect for independent directors' political connections is found on firms without political connections. The coefficient of Politics × Non-PCEO is positive and significant (β = 0.385, significant at the 5% level), which suggests that politically connected independent directors can add value to firms which have non-politically connected CEOs. It was indicated that politically connected directors can add value to firms due to these directors' knowledge of government procedures and their insight into predicting government actions (Agrawal and Knoebe, 2001), in addition to their easy access to outside resources (Li, Meng, Wang & Zhou, 2008). The reform of China's SOEs is a long-term process, and though politically connected CEOs might lack management skills, their strong public relationships can help their firms overcome many obstacles and conflicts caused by the maladjustments that stem from transforming an original SOE to a listed company.

In Model 4 of Table 5.4, all three interaction variables are included together. The results show that the coefficients of Banker × Leverage and Politics × Non-PCEO are still highly significant at the 5% level. This result confirms the positive contribution of commercial bankers and politically connected independent directors to highly leveraged firms and firms lacking political connections, respectively.

Table 5.4 An Analysis of the Interaction Effect between Independent Director Characteristics and Efficiency

| | Dependent variable: Tobin's Q | | | |
	Model 1	Model 2	Model 3	Model 4
Scholar	-0.197**	-0.163*	-0.157	-0.187*
Accountant	-0.278***	-0.287***	-0.284***	-0.281***
Lawyer	0.048	0.047	0.050	0.056
Banker	-0.072	-0.951**	-0.076***	-0.973**
Politician	-0.219**	-0.224**	-0.489	-0.505***
Retired Bureaucrat	0.100	0.140	0.122	0.137
International Executive	0.083	0.084	0.078	0.073
Control variables				
Board Size	-0.366	-0.372	-0.346	-0.395
Independence Ratio	-0.313	-0.292	-0.278	-0.326
Advice	-0.006	0.170*	0.165*	0.001
Leverage	0.163	0.041	0.174	0.063
Ownership Concentration	0.364	0.348	0.400	0.359
Bureaucrat	0.116	0.113	0.133	0.133
CEO Tenure	-0.361***	-0.358***	-0.359***	-0.356***
Non-PCEO	-0.023	-0.025	-0.115	-0.123
Board Meeting	-0.005	-0.004	-0.003	-0.004
Supervisor Meeting	0.023*	0.022*	0.021	0.021*
Supervisor	0.539	0.535	0.584	0.604*
Employee Supervisor	-0.118	-0.146	-0.127	-0.129
Interaction variables				
Scholar × Advise	0.220			0.203
Banker × Leverage		1.659**		1.734***
Politics ×Non-PCEO			0.385**	0.411**
Constant	3.767***	3.802***	3.708***	3.840***
Firms	494	494	494	494
Observations	1471	1471	1471	1471
Overall R^2	0.0615	0.0617	0.0591	0.0618

Note. This table reports the empirical results for a test of the interaction effect of independent director characteristics and firm efficiency. Scholar, Accountant, Lawyer, Banker, Politician, Retired Bureaucrat, and International Executive refer to dummy variables which equal 1 if a firm has on its board scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience, respectively. Advice is a dummy when the firm's Base-10 logarithm of total sales is higher than the 75th percentile of the sample, and at the same time it has a diversification dummy equal to 1.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

5.3.2.3 Robustness test

I do a sub-sample analysis to as a robustness test regarding the effect of scholars, commercial bankers, and politically connected independent directors. Table 5.5 presents the results of the subsample analysis. The results illustrate that, for the subsample with Advice dummy equals one (a dummy for the firms need more advise), a positive effect is found for having scholars on a board, although it is not statistically significant. However, for the subsample with Advice dummy equals zero, the negative effect of the presence of scholars on a board is statistically significant.

For the subsample with PCEO dummy equals one, the negative effect of having politically connected independent directors on a board is highly significant at the 1% level. However, for the subsample with PCEO dummy equals zero, the effect of recruiting politically connected independent directors to a board is positive, although not significant.

Moreover, grouping firms with the debt ratio higher than the 75th percentile of the sample as a highly-leveraged firm subsample, I find a positive effect for commercial bankers in highly-leveraged firms, and a negative effect for commercial bankers in low-leveraged firms, although these effects are not statistically significant. All these results are consistent with the results in Table 5.4, showing that scholars, commercial bankers, and politically connected independent directors can add value to large and diversified firms, highly leveraged firms, and firms without political connections, respectively.

Table 5.5 Characteristics and Efficiency – Robustness Test

	Advice dummy = 1	Advice dummy = 0	Highly-leveraged firms	Low-leveraged firms	PCEO = 0	PCEO = 1
			Dependent variable: Tobin's Q			
Scholar	0.062	-0.195*	-0.366	0.160	-0.237**	-0.054
Accountant	-0.092	-0.303***	-0.421*	-0.709***	-0.331***	-0.513*
Lawyer	-0.100	0.032	0.317	-0.074	0.029	-0.049
Banker	(dropped)	-0.043	0.062	-0.303	0.022	-0.078
Politician	-0.428	-0.229**	-0.111	-0.404**	0.117	-0.701***
Retired Bureaucrat	-0.563	0.069	0.032	0.181	0.061	0.359
International Executive	0.011	0.020	0.062	-0.907	0.174	-1.496**
Control variables						
Independence Ratio	0.298	-0.426	-0.412	1.486*	-0.036	-0.673**
Board Size	0.675	-0.563	-0.033	0.091	-0.284	-0.623
Firm Size	1.700***	-0.227	0.485*	-0.061	0.188	-0.727
Leverage	-2.453***	0.369*	0.771*	-2.788***	0.678**	-0.608
Ownership Concentration	-0.158	0.507	0.669	-0.334	-0.747	2.209**
Bureaucrat	(dropped)	0.094	0.020	(dropped)	0.111	-0.033
CEO Tenure	-0.316***	-0.367***	-0.394***	-0.361***	-0.422***	-0.172***
PCEO	-0.135	0.040	-0.257	0.238		
Board Meeting	0.007	-0.007	-0.021	0.009	-0.001	0.004
Supervisor Meeting	0.014	0.026*	0.013	0.037*	0.019**	0.035
Supervisor	0.295	0.823**	1.838**	-0.060	0.921	0.103
Employee Supervisor	-0.071	-0.188	0.067	-0.497	-0.018	-0.476
Constant	-12.464***	5.764***	-1.998	4.863*	2.137	9.640***
Observations	180	1291	368	368	1067	404
Overall R^2	0.0659	0.0917	0.0693	0.0708	0.0491	0.1293

Note. This table reports the results of the subsample tests on the effects of independent director characteristics on firm performance. Advice is a dummy equal to 1 if a firm has a Base-10 logarithm of total sales higher than the 75th percentile of the sample, and at the same time the diversification dummy equals 1; otherwise, it equals 0. Firms with a debt ratio (total liabilities to total assets) higher than the 75th percentile of the sample are recognised as highly-leveraged firms, and firms lower than the 25th percentile of the sample are recognised as low-leveraged firms. PCEO refers to a dummy variable that equals 1 when a firm has a politically connected CEO; otherwise, it equals 0.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

5.3.3 Independent director's characteristics and expropriation

In this section, I explore whether independent directors can limit related party transactions. The related party transactions data are collected from the CSMAR China Listed Firm's Related Party Transactions Research Database.

Two variables are conducted to proxy expropriation by the controlling shareholders of listed companies. Expropriation 1 refers to related party transactions between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, and the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. There are 17 types of related party transactions [25] in the sample. Moreover, a variable Expropriation 2 is conducted, in order to carry out a robustness test. Cheung, Rau and Stouraitis (2006) classified the connected transactions into three broad categories:

1. Transactions that are a priori likely to result in expropriation, which includes asset acquisitions, asset sales, equity sales, trading relationships, and cash payments to connected parties;

2. Transactions likely to benefit the listed firm, which includes cash receipts and subsidiary relationships; and

3. Transactions that may have been driven by strategic rationale, which includes takeover offers and joint ventures, joint venture stake acquisitions, and sales.

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[25] 01 = Commodity transaction; 02 = Asset Transaction; 03 = Receiving or Rendering Services; 04 = Agency, Commissioning; 05 = Fund transaction; 06 = Guarantee and pledge; 07 = Lease; 08 = Operating Trust (management side); 09 = Donation; 10 = Non-monetary transaction; 13 = Stock transaction; 15 = Debt transaction; 17 = Cooperative project; 18 = License agreement; 19 = R&D achievements; 20 = Key managers' remuneration; 21 = Other events

Expropriation 2 refers to the related party transactions that are a priori likely to result in expropriation, as suggested by Cheung, Rau and Stouraitis (2006), including commodity transactions, asset transactions, fund transactions, guarantees and pledges, stock transactions, and debt transactions. In my sample, Expropriation 2 refers to these transactions occur between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, or the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company.

5.3.3.1 The pre- and post-guidelines expropriation

The Wilcoxon z test is used to examine whether the difference in terms of expropriation during the pre- and post-Guidelines periods is statistically significant. A proportion test is also carried out in order to examine whether the proportion of change is greater than 50%. The pre-Guidelines expropriation equals the 3-year average expropriation from 1999 to 2001, and the post-Guidelines expropriation equals the 2-year average expropriation from 2003 to 2004.

Table 5.6 reports the results of the Wilcoxon z test. It is shown that the post-Guidelines expropriation is significantly higher than pre-Guidelines expropriation in terms of both Expropriation 1 and Expropriation 2. Moreover, I compare the number of board meetings in 2001 and a 2-year average number of meetings between 2003 and 2004, and find that firms organise more board meetings after the recruitment of independent directors (the meeting number increases from 6.0061 to 7.5051, a difference that is statistically

Table 5.6 Independent Directors and Expropriation – Wilcoxon z Test

	n	Mean Pre-Guidelines	Mean Post-Guidelines	Post-Guidelines – Pre-Guidelines	Wilcoxon Test z	Sig. (2-tailed)	Proportion Test Positive/Negative
Expropriation							
Expropriation 1	494	0.0959	0.1209	0.0350	-3.292	0.0010	228/182, 0.000
Expropriation 2	494	0.0837	0.1116	0.0279	-3.200	0.0014	221/182, 0.000
Board Meeting	494	6.0061	7.5051	1.499	-9.536	0.0000	317/138, 0.000

Note. This table presents the results of the Wilcoxon z test. Pre-Guidelines expropriation equals the 3-year average expropriation from 1999-2001 (for board meeting data, Pre-Guidelines refers to 2001). Post-Guidelines expropriation equals the 2-year average expropriation from 2003-2004. Expropriation 1 refers to related party transactions between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, and the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. Expropriation 2 refers to related party transactions that are a priori likely to result in expropriation, including commodity transactions, asset transactions, fund transactions, guarantees and pledges, stock transactions, and debt transactions between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, and the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. Board meeting refers to the number of board meetings per year.

significant). Vafeas (1999) indicated that board activity, as measured by board meeting frequency, is an important dimension of board operations. In particular, he found that board meeting frequency was significantly and negatively related to a firm's market performance because a higher meeting frequency signals inefficient corporate governance.Overall, these results suggest that, although the boards have more meetings after the recruitment of more independent directors, they do not play a monitoring role in terms of limiting the dollar value of related party transactions between listed firms and their controlling shareholders.

5.3.3.2 Do independent directors monitor related party transactions?

A random-effects GLS regression is used to further test whether independent directors fulfil their role of controlling related party transactions. The panel data cover the 494 sample firms from the period 2002 to 2004.

The initial regression specification for the effect of independent directors on related party transactions is as follows:

$$Expropriation = \alpha + \beta_1 \text{ Characteristics Dummy} + \beta_2 \text{ Board size} + \beta_3 \text{ Board independence} +$$
$$\beta_4 \text{ Firm Size} + \beta_5 \text{ Leverage} + \beta_6 \text{ Ownership concentration} + \beta_7 \text{ Bureaucrat}$$
$$+ \beta_8 \text{ CEO tenure} + \beta_9 \text{ PCEO} + \beta_{10} \text{ Board Meeting} + \beta_{11} \text{ Supervisor}$$
$$\text{Meeting} + \beta_{12} \text{ Supervisor} + \beta_{13} \text{ Employee Supervisor} + \varepsilon$$

Table 5.7 reports the empirical results regarding the random-effects regression analysis. It is found that an insignificant positive relationship exists between the proportion of

independent directors on a board and expropriation, which suggests that independent directors do not effectively monitor related party transactions. When the characteristic dummies are used, it is found that firms with more retired bureaucrats on their boards engage in more related party transactions. Moreover, having scholars on a board is positively related to expropriation, whilst the presence of certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, and executives with overseas work experience on a board is negatively related to expropriation, but the results are not statistically significant.

It has been found that ownership concentration is significantly and positively related to expropriation. As discussed previously, in China, controlling shareholders have a strong incentive to tunnel from listed firms. Cheung, Rau and Stouraitis (2006) suggested that controlling shareholders can expropriate wealth from minority shareholders in many ways; moreover, the higher the proportion of shares held by the largest shareholder, the easier it is to do so. The largest shareholding in my sample accounted for 43.03% of the total shares issued. The empirical results found here add evidence to the argument that controlling shareholders are expropriating wealth from minority shareholders

Interestingly, my empirical results indicate that the involvement of the government is an effective way to protect small shareholders. It has been found that firms with politically connected CEOs engage in fewer related party transactions and this effect is highly significant at the 1% level. Moreover, it is found that the Bureaucrat dummy is significantly and negatively related to expropriation. This result indicates that government

bureaucrats appear to lend a helping hand in efforts to limit expropriation by the

controlling shareholders.

**Table 5.7 A Random-Effects Regression Analysis on Independent Directors'
Characteristics and Expropriation for Sample Chinese Firms**

	Expropriation 1		Expropriation 2	
	Model 1	Model 2	Model 1	Model 2
Board Size	0.123	0.134	0.048	0.069
Independence Ratio	0.006	0.024	0.076	0.113
Scholar		0.022		0.013
Accountant		-0.008		-0.008
Lawyer		-0.012		-0.019
Banker		-0.045		-0.041
Politician		-0.015		-0.021
Retired Bureaucrat		0.083***		0.076***
International Executive		-0.001		-0.014
Firm Size	0.088***	0.084***	0.078***	0.075***
Leverage	-0.045	-0.040	-0.051	-0.047
Ownership Concentration	0.256***	0.256***	0.233***	0.232***
Bureaucrat	-0.059*	-0.054	-0.052	-0.047
CEO Tenure	-0.003	-0.004	-0.005	-0.006
PCEO	-0.055**	-0.056***	-0.053***	-0.055***
Board Meeting	-0.001	0.000	0.000	0.001
Supervisor Meeting	-0.006	-0.007	-0.006	-0.006
Supervisor	-0.164**	-0.169**	-0.122*	-0.126*
Employee Supervisor	0.102**	0.096**	0.113**	0.108**
Constant	-0.739***	-0.728***	-0.624***	-0.624***
Firms	494	494	494	494
Observations	1471	1471	1471	1471
Overall R^2	0.0736	0.0695	0.0847	0.0804

Note. This table reports the empirical results of a random-effects regression analysis on independent directors' characteristics and expropriation. Scholar, Accountant, Lawyer, Banker, Politician, Retired Bureaucrat and International Executive refer to dummy variables which equals 1 if a firm has on their board scholars, certified public accountants, certified lawyers, commercial bankers, politically connected outsiders, retired bureaucrats, and executives with overseas work experience, respectively. Firm Size is measured as the Base-10 logarithm of total sales. Leverage refers to the debt ratio, calculated as total debt divided by total assets. Ownership concentration is the proportion of shares held by the largest share holder to the total number of shares. Bureaucrat is a dummy which is equal to 1 if the largest shareholder is a government bureaucrat. CEO Tenure is the number of years the CEO has been with the firm. PCEO refers to a dummy variable equal to 1 if a firm has a politically connected CEO; otherwise, it equals 0. Board Meeting refers to the number of board director meetings per year. Supervisor Meeting refers to the number of supervisory meetings per year. Supervisor stands for the number of supervisors on a supervisory board. Employee Supervisor stands for the proportion of employee supervisors to the total number of supervisors on a supervisory board.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

In addition, it is shown that the number of supervisors on a board is significantly and negatively related to expropriation. This indicates that firms with larger supervisory boards engage in fewer related party transactions. As previously discussed, the supervisory board is usually composed of employees and shareholder representatives. I further find that firms with more employee supervisors on their supervisory boards engage in more related party transactions. This result indicates that the contribution of supervisors toward controlling related party transactions comes from shareholder representatives rather than the employee supervisors.

5.4　Conclusion

It is interesting to question whether some independent directors with particular backgrounds work more efficiently than others who have different backgrounds. Can some independent directors who possess specific characteristics or experience add more value to listed firms than others?

Through the utilization of hand-collected data on the backgrounds of independent directors recruited by 494 Chinese listed companies between 2002 and 2004, it is found that scholars at universities or research institutions are the largest candidate of independent directors in China. In my sample, 43.76% of independent directors are scholars. Nearly 14% of independent directors have political connections, including 8.11% who are politically connected outsiders still working, and 5.77% who are retired bureaucrats. In addition, 7.95% and 7.59% are certified public accountants and certified lawyers, respectively;

2.79% are commercial bankers; and 1.54% of independent directors are executives with overseas work experience.

It is found that there is a significant negative relationship between the presence of scholars, certified public accountants, and politically connected outsiders on a board and Tobin's Q, but I fail to find a significant positive effect on firm performance from any particular background characteristic of independent directors. Although the overall effect of appointing independent directors to a board is negative, it has been shown that the presence of scholars, commercial bankers, and politically connected independent directors add value to large and diversified firms, highly leveraged firms, and firms with non-politically connected CEOs, respectively.

Furthermore, I examine the value of independent directors in terms of controlling related party transactions. The results show that the recruitment of independent directors does not limit related party transactions between the listed companies and their controlling shareholders. Instead, it is found that firms with politically connected CEOs and firms with government bureaucrats as the largest shareholders engage in fewer related party transactions. This result indicates that the involvement of the government might be more effective than the recruitment of independent directors, in terms of controlling related party contractions.

Wang (2008) suggested that "the supervisory board and the independent directors, the 'strange partners' in China's listed companies, have not had significant achievements in improving corporate governance" (p. 48). However, Firth, Fung and Rui (2007) found that, in China, firms with larger supervisory boards have better earnings and higher quality

financial statements, as judged by an auditor. It is found in this thesis that firms with a larger supervisory board engage in less related party transactions, and that this contribution comes specifically from shareholder representatives on the supervisory board. These results provide interesting topics for future research, such as, 'How to improve the effectiveness of the two-tiered board system employed by Chinese businesses'.

Chapter Six

Conclusion

This chapter concludes the thesis by briefly summarizing the key findings from each of the

three essays, and also by exploring potential areas for further research.

6.1   Major findings and implications

6.1.1   Essay One

The first essay in this thesis focuses on a feature of China's SIP that is of particular significance when compared with SIPs in other countries: regional disparity. To examine China's regional disparity, five proxies are used: (a) provincial GDP per capita, which is widely used as a proxy to represent the degree of economic development; (b) provincial real GDP growth, a proxy representing provincial economic growth; (c) the degree of openness in the provincial economy, as a proxy of product market competition, which is calculated as the proportion of the total value of foreign trade (the sum of exports and imports) to the provincial GDP; (d) the proportion of the provincial government's expenditure on government administration to the provincial GDP, as a proxy of the provincial government's efficiency; and (e) the cross-province distribution of A-share accounts of the Shanghai and Shenzhen Stock Exchanges, as a proxy of the regional stock market development.

The Wilcoxon z test is employed to examine whether the differences in the regional development proxies between the above-mean subsample (the seven provinces that have better than average levels in all the regional development proxies) and the below-mean subsample (the six provinces that have lower than average scores in all the regional development proxies) are statistically significant. It is shown that the differences in the provincial GDP per capita, provincial real GDP growth, degree of openness in the provincial economy, and provincial government efficiency are all significant at the 1%

level, while the difference in regional stock market development is significant at the 5% level. It is further found that profitability in terms of ROS decreases after SIP in China, irrespective of whether the firms are located in developed provinces or underdeveloped provinces.

A dummy variable, Location, is conducted which equals 1 if a firm is located in the above-mean subsample. Cross-sectional analysis is used to explore whether Location matters for post-privatization performance in China. It is shown that after controlling for factors that could affect post-privatization performance, Location is positively and significantly related to Tobin's Q, and positively related to 3-year average ROS and ROS changes after listing. Panel data analysis is further used to explore whether the regional development proxies are related to post-privatization performance. It is found that provincial GDP per capita, GDP growth, product market competition, and provincial stock market development are all significantly and positively related to Tobin's Q. When all five regional development proxies are included together, the coefficient of Competition is still positively significant at the 1% level.

My findings contribute to the argument that a change in ownership alone at the microeconomic level may not be sufficient to lead to profitability improvement after privatization; in particular, the success of privatization needs to be linked to competition and the regulation of competition (Cook & Uchida, 2003). China, as one of the countries with the sharpest imbalance in development among different regions, needs the government to stimulate regional product market competition in order to take full advantage of the benefits of SIP.

6.1.2   Essay Two

The second essay examines the empirical results of the implementation of an independent director system in China. First, the determinants of board structure in Chinese listed firms are examined. It is found that three factors are significant concerning the size of the boards at these firms. The largest shareholders have strong incentives to organize small and insider-controlled boards. The Advice dummy, as a proxy of advisory demand, is also significant, since Chinese listed firms – especially large firms – have huge advisory requirements. Moreover, the method used for restructuring is also relevant; firms with more than one sponsor while listing have larger boards than firms with only one sponsor while listing. Regarding the determinants of board independence ratio (the proportion of independent directors to the total number of directors on the board), it is found that well performing firms have larger independence ratios, while firms with more than one sponsor have smaller independence ratios; however, firm size and the Diversification dummy are no longer statistically significant.

Secondly, I examine the efficiency of independent directors in China and find there is a significantly negative relationship between board size and Tobin's Q. In addition, a negative relationship is found between the proportion of independent directors on a board and the firm's performance.

Two interaction variables, Board size × Advice and Board independence × Advice, are constructed to capture the advisory role of the board. It is found that when the interaction variables are involved, Board size, Board independence, and the Advice dummy are still

negatively related to a firm's performance; however, the coefficient of Board size × Advice is positive, and the coefficient of Board independence × Advice is significantly positive at the 1% level. This result indicates that independent directors can add value to large and diversified firms, which have more advisory requirements.

It is argued by Agawal and Knoeber (1996) that the monitoring role played by outside directors depends on the relative strength of other substitute governance mechanisms. Chinese independent directors can not play a monitoring role efficiently, due mainly to two factors: First, Chinese listed firms have a highly concentrated ownership structure and an insider-controlled board (Lin, 2004). It is suggested that the insider-dominated system of corporate governance and the pervasiveness of government can not create truly independent directors (Hovey & Naughton, 2007). Second, the managerial labour market is still immature in China and up to the present time, there has not been an efficient mechanism to stimulate the independent directors working on behalf of small shareholders.

In addition, my empirical results suggest that going public with more than one sponsor is not an optimal restructuring method. On the one hand, firms going public with more than one sponsor have larger corporate boards with low board independence, which signals inefficient corporate governance to the market. On the other hand, firms going public with more than one sponsor underperform as compared to those going public with just one sponsor.

6.1.3   Essay Three

The third essay focuses on the relationship between independent directors' characteristics and firm performance in China. It is found that the main incentive of Chinese listed firms to recruit independent directors to their boards is to build up connections with people who could provide useful resources and/or protection, rather than to provide monitoring of the firms' top management. In particular, Chinese listed firms exhibit two types of *guanxi* provided by independent directors: in my sample, 43.76% of the independent directors are university scholars or researchers, and 13.88% are politically connected.

It is shown that the relationship between Tobin's Q and the presence of scholars and politically connected independent directors on boards is significantly negative, and I do not find a significant positive effect for any specific characteristic of the independent directors' backgrounds on firm performance. However, the results demonstrate that the resources that provided by independent directors are not totally worthless. It is found that scholars, commercial bankers, and politically connected independent directors can add value to large and diversified firms, highly leveraged firms, and firms without political connections, respectively.

In addition, I examine whether independent directors monitor top management in terms of related party transactions. It is found that the relationship between the proportion of independent directors on a board and expropriation is positive, although insignificant, suggesting that independent directors do not play an effective monitoring role. Moreover, the results indicate that government bureaucrats appear to lend a helping hand with

limiting expropriation by the controlling shareholders. It has been found that firms with politically connected CEOs and firms with government bureaucrats as the largest shareholders engage in fewer related party transactions.

6.2   Future areas of research

6.2.1   Political connection - a 'grabbing hand' or a 'helping hand'

Green (2005) argued that China's stock market is privatizing slowly due to the following features:

1. Partial listing; that is, when a company goes listed, normally just part of its assets go public. The assets that do not go public will normally be held by the parent company of the listing company.

2. Partial trading; that is, State-owned enterprises initially receive only about one third of their equity capital to be traded in the stock market, while the rest of the equity capital is untradeable.

3. Government bureaucrats are important shareholders of listing companies.

As discussed, the impact of political connection on company performance is an important issue for China and the findings are inconclusive. It is still a question for empirical inquiry as to whether the political connection is a 'grabbing hand' that expropriates firms for the benefit of politicians and bureaucrats, or a 'helping hand' that provides benefits.

There are studies which indicate that government relationships are potentially detrimental to shareholder value (Berkman, Cole & Fu, 2009; Cheung, Rau & Stouraitis, 2006; Deng, He & Gan, 2006; Fan, Wong & Zhang, 2007). However, my empirical results indicate that firms with politically connected CEOs and firms with a government bureaucrat as their largest shareholder actually engage in fewer related party transactions. Moreover, it is found in essay one that the proportion of the shares owned by government bureaucrats to the total number of shares is significantly and positively related to Tobin's Q. This positive relationship can be interpreted as the effect of the presence of State shareholders on investor perception, as suggested by Sun and Tong (2003).

It is indicated that, besides normal agency costs, Chinese corporate governance is also suffering from political costs (Xu, Zhu & Lin, 2005) — investors risk expropriation both by the government and by controlling shareholders. As Stulz (2005) argued that when the risk of expropriation by the government is high, the controlling shareholders will cooperate more with the outside investors in order to control expropriation by the government. The results in this thesis indicate that although Chinese listed firms operate with the potential risk of expropriation both by the government and by controlling shareholders, the involvement of the government can limit the risk of expropriation by controlling shareholders. It would be worthwhile to carry out further analysis to explore which role the political connection is playing – a 'grabbing hand', or a 'helping hand', or both. It is an interesting topic to explore the optimal ownership structure of Chinese listed firms to protect small shareholders.

6.2.2　The supervisory board - a failure or an essential mechanism

Chinese listed firms employ a two-tiered board system which includes a directory board and a supervisory board. This is a combination of the external market-based Anglo-US model and the German two-tiered board approach. The Anglo-US model has many advantages, including the reduction of capital costs and an increase in market efficiency (and hence, allocational efficiency), but the efficiency of this model depends on several factors, including free, transparent, open, and liquid markets, as well as active and well-protected shareholders (Hovey and Naughton, 2007). Unfortunately, these factors are not currently found in the Chinese economy.

According to Wang (2008), the supervisory board is a complete failure because the membership of a supervisory board consists of bureaucrats or close friends and allies of the senior managers. However, it was also found that, in China, firms with larger supervisory boards have better earnings and higher quality financial statements (Firth, Fung & Rui, 2007). The results in this thesis also suggest that the number of supervisors on a supervisory board is significantly and negatively related to expropriations, and this contribution comes from the shareholder representatives on the board. Therefore, the theoretical and empirical question is still, "How can an effective mechanism be created to protect small shareholders in China?"

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