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## **Executive Compensation, Firm Performance and Liquidity Under Imperfect Corporate Governance**

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EXECUTIVE COMPENSATION, FIRM PERFORMANCE AND LIQUIDITY  
UNDER IMPERFECT CORPORATE GOVERNANCE

A Dissertation  
by  
YONGLI LUO

Submitted to the Graduate School of  
The University of Texas-Pan American  
In partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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Major Subject: Business Administration with emphasis in Finance



EXECUTIVE COMPENSATION, FIRM PERFORMANCE AND LIQUIDITY  
UNDER IMPERFECT CORPORATE GOVERNANCE

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August 2012



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## ABSTRACT

Luo, Y., Executive Compensation, Firm Performance and Liquidity Under Imperfect Corporate Governance. Doctor of Philosophy (Ph.D.), August, 2012, 187 pp., 25 tables, 7 figures, 194 references.

This dissertation examines the relationship between executive compensation, firm performance and liquidity under imperfect corporate governance institution by using a novel Chinese dataset over 2001-2010.

The first essay examines the determinants of Chinese executive compensation from the agency-based theoretical framework. I find that there is a positive relationship between Chinese executive compensation and firm performance. The weak corporate governance in China exhibits strong liquidity and control effects after the split-share structure reform. It seems that CEO duality, the establishment of compensation committee, and the involvement of state ownership in Chinese public firms may lead executive compensation to a relation-based rather than a market-based contract.

The second essay explores the probability of expropriation of minority shareholders by controlling shareholders in terms of CEO compensation in an imperfect governance institution. The results reveal that firms with more tunneling activities typically have larger controlling ownership, stronger involvement of state control, less balance of power among other large shareholders as well as weak board characteristics. The positive relationship between controlling shareholders' tunneling and executive compensation implies that the controlling shareholder



might divert personal benefits from the public firms at the expense of minority shareholders in terms of executive compensation.

The third essay examines the determinants of cross-listing for Chinese public firms by focusing on the A-shares that concurrently issue B-shares or H-shares based on agency theory, and the signaling and bonding hypothesis. I find that cross-listing issuers are motivated to list overseas by the legal and accounting standards of the foreign markets, management remuneration, as well as the demands for external capital. The results suggest that the level of Chinese executive compensation is associated with the decision of cross-listings, implying that cross-listings could be employed by executives as a way of asset appropriation. Moreover, a Chinese firm is more likely to cross-list if it experiences value deteriorations, or a lack of growth opportunity in the domestic market.

## DEDICATION

The completion of my doctoral studies would not have been possible without the love and support of my family. I am grateful for my dearest parents who have devoted all their efforts in me and have wholeheartedly supported me by all means to accomplish this degree. I would also like to express my thankfulness to my wife Chunhua Che, my daughter Annie Luo and my son Andrew Luo, and I wish to extend my deepest love and gratitude for their always accompanying, caring for and encouraging me in my life. In addition, I would like to thank my sister and the rest of my family, thank you for always being there and countlessly supporting throughout my study. I dedicate this dissertation to my family for their endless love, unconditional support and continuing understanding. Moreover, I would like to extend my appreciation to all my friends for their encouragement and help to make this dream a reality. Finally, I would like to praise the LORD for His abundant grace and steadfast love upon my family.



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## CHAPTER I

### INTRODUCTION

#### **1.1 Review of Literature**

Management compensation research has received considerable attention during the past several decades among both academics and practitioners. The most well-known studies arise from the separation of ownership and control or agency theory (Fama and Jensen, 1983; Jensen and Meckling 1976). The majority of these compensation studies are mainly conducted in Anglo-Saxon economies, primarily the United States. However, in the wake of recent financial crisis, executive compensation packages in the U.S. and Europe are criticized to be a major cause of the recent economic turmoil (Bebchuk and Spamann, 2009; Vallascas and Hagendorff, 2010). The public debate and government bailout give the impression that the boards of directors have done a bad job of defining the chief executive officer (CEO) incentives or management compensation package.

The agency-based theory suggests that CEO compensation contracts are determined by arms-length bargaining that leads to efficient outcomes (Holmstrom and Kaplan, 2003; Edmans and Gabaix, 2009). The agency theory predicts that executive compensation depends, at least in part, on changes in shareholder's wealth. A positive relationship between management compensation and firm performance is in line with agency theory in the sense that the higher the pay-performance responsiveness, the lower the level of "skimming". Nonetheless, previous studies using different data, techniques, and model specifications generally find little evidence or

only a very weak relationship to support the pay-performance setting (Jensen and Murphy, 1990; Kerr and Bettis, 1987). Hence, Garen (1994) concludes that the overall explanatory power of the empirical model for pay-performance sensitivity is quite low and this remains a puzzle in the analysis of executive compensation.

Jensen and Murphy (1990) suggest that researchers should examine factors outside an agency framework to explain CEO pay, or at least empirically test the explanatory power of other alternative paradigms to agency-based models. Accordingly, a growing body of literature shows that executive compensation is associated with a firm's ownership structure, board characteristics, remuneration committee, the market for corporate takeover, or even the general public environment (Daily *et al.*, 1998; Jensen, 1993; Jensen and Murphy, 1990). Unfortunately, efforts to find a correlation between a firm's governance attributes, firm value, and executive compensation show relatively weak or no results, particularly in the Anglo-Saxon economies. Hence, Black (2001) argues that the Anglo-Saxon context is not an ideal setting to test the effectiveness of corporate governance on firm value and executive compensation because the quality of corporate governance in these countries is quite high. Anglo-Saxon corporate governance means shareholders control senior managers. It features open, external information disclosure and stringent accounting rules, single-tier boards, hostile takeovers, laws protecting minority shareholders, and a high proportion of a firm's stock in "free float," while in an emerging country where legal and cultural constraints on corporate behavior are weak, corporate governance has a more powerful effect on firm value and executive compensation.

China, as a major emerging economy, has been well documented as having weak institutional features and a distinctive board structure. The distinctions are reflected in the following ways. First, Chinese firms typically have a two-tier board structure where a listed firm

is governed by both a board of directors and a supervisory committee. In contrast to the one-tier board structure in Anglo-Saxon countries, there is a natural distance between executive board members and non-executive board members in China. In a one-tier board system, all directors (both executive directors and non-executive directors) form one board and take combined decisions. Within a two-tier board system, the management board (chaired by the CEO) is responsible for the day-to-day business, and report the corporate strategy and financial arrangement to the supervisory board and the general meeting of shareholders. Second, the majority of Chinese-listed companies are state-owned enterprises and their major corporate decisions are frequently determined by the government. Chinese executives and directors are often bureaucrats and appointed or nominated by the government. Third, high ownership concentration is prevalent among Chinese public firms. On average, the equity ownership held by the largest shareholder in a firm is more than 40% (Allen *et al.*, 2005). The concentrated ownership structure implies that the classical principal-agent conflict is likely to be of less concern because controlling shareholders have more incentives to monitor managers. Thus, the empirical studies in the Chinese context have important implications for investors, board members, and regulators to better understand the pay-performance setting and institutional background in emerging markets.

Another main stream of research on CEO compensation study is from the entrenchment framework which states that powerful CEOs can exercise enormous sway over boards, rendering the boards ineffective in setting appropriate CEO contracts (Bebchuk and Fried, 2004; Morse *et al.*, 2010). From this rent-extraction perspective, in a country where corporate governance and legislative institution are weak, CEO contracts results in a higher level of compensation through expropriations of the minority shareholders by the controlling shareholder. Empirical studies



argue that the effectiveness of commonly used market-based corporate governance mechanisms in developed economies may not work in emerging economies (Ball *et al.*, 2000, 2003; Bushman and Piotroski, 2006; Chan *et al.*, 2001; Jaggi *et al.*, 2000; Opper, 2007). The reason relies on the fact that the political influence within state-owned enterprises (SOEs) in emerging economies could lead to a relation-based rather than market-based contract (Ball *et al.* 2000, 2003). Bertrand and Mullainathan (2001) show that agency-based bargaining takes place in firms with strong governance while entrenchment-based skimming takes place in firms with weak governance. As a result, testing the pay-performance setting without specifying the characteristics of corporate governance and legislative institution could hardly provide adequate insights into understanding the mechanism of CEO compensation.

## **1.2 Research Questions and Contributions**

This dissertation examines the relationship between executive compensation, firm performance, and liquidity under imperfect corporate governance institution by using a novel sample of Chinese public firms over 2001-2010. The dissertation moves beyond the basic pay-performance setting by combining the agency-based theory with other alternatives such as ownership structure and board characteristics as well as examining the probability of expropriation of minority shareholders based on CEO entrenchment framework. Moreover, it extends the existing literature by investigating the significant impacts of discriminated split-share reform on management remuneration, firm performance and liquidity, and corporate governance in terms of CEO compensation, controlling shareholders' tunneling, and cross-listing decision in an emerging market. The major research questions are included in three essays.

The first essay examines the determinants of Chinese executive compensation from the agency-based theoretical framework by using a large sample of Chinese public firms over 2001-

2010. The results provide support that there is a positive relationship between Chinese executive compensation and firm performance under imperfect governance institution. The weak corporate governance in China exhibits strong liquidity and control effects after the split-share structure reform. Although ownership concentration has significantly negative impacts on CEO compensation, firm liquidity has significantly contributed to the increases in executive compensation since 2005. It seems that CEO duality, the establishment of compensation committees, and the involvement of state ownership in Chinese public firms may lead executive compensation to a relation-based rather than a market-based contract, suggesting that the government or board may ensure efficient incentives in the business activities as a helping-hand when corporate governance is weak.

The second essay explores the probability of expropriation of minority shareholders by controlling shareholders in terms of CEO compensation in an imperfect governance institution by using a large Chinese dataset over 2001-2010. The results reveal that controlling shareholder's tunneling has a significant deterioration effect on firm performance. Firms with more tunneling activities typically have larger controlling ownership, stronger state-control involvement, less balance of power of other large shareholders, as well as weak board characteristics. The positive relationship between controlling shareholders' tunneling and executive compensation implies that the controlling shareholder might divert personal benefits from the public firms at the expense of minority shareholders in terms of executive compensation. Overall, the results support the entrenchment skimming theory, suggesting that a strong corporate governance system and firm characteristics may ensure lowering the likelihood of tunneling and improving the level of investor protections.

The third essay examines the determinants of cross-listing for Chinese public firms over 2001-2010. I focus on the A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations. I study the importance of firm performance and liquidity, executive compensation, and corporate governance on the decision of cross-listing for the Chinese public firms based on agency theory, and the signaling and bonding hypotheses. I find that cross-listing issuers are motivated to list overseas by the legal and accounting standards of the foreign markets, management remuneration, as well as the demands for external capital and foreign expertise. The results suggest that the level of Chinese executive compensation is associated with the decision of cross-listings, and cross-listings could be employed by executives as a way of asset appropriation. Moreover, a Chinese firm is more likely to list overseas if it experiences value deterioration, or lacks growth opportunities. Finally, the results show that board characteristics have a more important role in determining whether to cross-list in Hong Kong relative to the B-share market. The results have important implications for better understanding CEO entrenchment and investor protection under an imperfect corporate governance institution.

### **1.3 Specifications and Definitions**

In the following chapters, I conduct a comprehensive literature review and highlight the contributions of this dissertation to the existing literature. Each chapter includes several empirical studies to further examine the relationship between executive compensation, corporate governance, and firm performance and liquidity in China. Specifically, the empirical studies focus on (1) The relationship between executive compensation, corporate governance, and firm performance based on agency theory in the Chinese context; (2) The relationship between CEO compensation, expropriation of minority shareholders and the balance of power among large

shareholders; (3) The determinants of cross-listing for Chinese public firms and the role executive compensation, firm performance and liquidity and corporate governance in cross-listing decision. In each chapter, I develop the hypotheses and evaluate the major findings by using different techniques, and I also check the robustness of the empirical results by using different variables. In the last section of each chapter, I provide implications, limitations and conclusions of the empirical studies.

Throughout the dissertation, the exchange rate is used as of December 31, 2011 which is 1USD=7.76799HKD and 1USD=6.30559CNY. The definition of ultimate controller shareholder is obtained from China Center for Economic Research (CCER database). In the CCER original database, the ultimate controller of the firm is defined as “0” if it is controlled by the state, “1” by the private, “2” by foreign ownership, “3” by collective ownership, “4” by social entities, “5” by employees, “6” by other ownerships that cannot be recognized, and “-95” indicates the value is missing. All the serial numbers after figures, tables, equations, and appendices refer to those in the same chapter (section) unless otherwise indicated. The abbreviations and their corresponding definitions in the dissertation are defined in each chapter when they are first used.

## CHAPTER II

### LIQUIDITY VERSUS CONTROL, CEO COMPENSATION UNDER IMPERFECT GOVERNANCE INSTITUTION

#### 2.1 Introduction

Executive compensation packages in Anglo-Saxon countries, primarily the United States, are criticized to be a major cause of the recent financial crisis (Bebchuk and Spamann, 2009). Bebchuk and Fried (2004) claim that CEO compensation in the U.S. is inefficient “pay without performance” and it calls for systemic reform. More recently, Vallascas and Hagendorff (2012) examine the relationship between executive compensation and bank default risk in the U.S. and Europe and they find that banks with CEO stock options display significantly higher default risk and pay incentives are related to higher bank risk particularly in weak regulatory environments. In addition, recent statistics shows that CEOs at the nation’s largest corporations received total compensation of \$9.25 million on average in 2009,<sup>1</sup> the U.S. banks awarded a record \$145 billion in total compensation, and executives at 38 top financial companies earned nearly 18% more than they did in the previous year.<sup>2</sup> The academics argue that executive compensation practices in Anglo-Saxon economies are not “optimal” for shareholders because “managerial power” arises when boards of directors at public companies are not independent of executives

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<sup>1</sup> According to the AFL-CIO’s analysis of available pay data from 292 companies in the Standard & Poor’s 500 index. Data source: <http://www.aflcio.org/corporatewatch/paywatch/pay/>

<sup>2</sup> Data source: “US: Banks Set for Record Pay” by Stephen Grocer, Wall Street Journal, January 14th, 2010.

(Bebchuk and Fried, 2006). Thus, the public debate and government interventions give the impression that the boards of directors have done a poor job of defining CEO incentives or management compensation packages.

This study aims to provide further insights into the understanding of the role of institutional features and board characteristics in determining executive compensation in a non-Anglo-Saxon context. Compared to the pay practice in Anglo-Saxon economies which embraces a high proportion of equity-based compensation for executives (La Porta *et al.*, 1999; Shleifer and Vishny, 1997), equity-based incentive for Chinese CEO is almost non-existent. Moreover, China is less affected by the financial crisis and it has been well documented as having distinctive corporate governance and institutional features. The distinctions of Chinese compensation practices are reflected in the following ways. First, Chinese firms typically have a two-tier board structure where a public firm is governed by both a board of directors and a supervisory committee. In contrast to the one-tier board structure in Anglo-Saxon countries, there is a natural distance between executive board members and non-executive board members in China. In a one-tier board system, all directors (both executive directors and non-executive directors) form one board and take combined decisions. Within a two-tier board system, the management board (chaired by the CEO) is responsible for the day-to-day business, and report corporate strategy and financial arrangements to the supervisory board and the general meeting of shareholders.<sup>3</sup> Second, the majority of Chinese public companies are state-owned enterprises (SOEs) and their major corporate decisions are frequently determined by the government. In fact, many Chinese executives and directors are often bureaucrats that are appointed or nominated by the government. It is important to examine the role of state ownership in determining executive

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<sup>3</sup> The role of the supervisory board is to supervise the policies of the management board and the general affairs of the company, as well as to assist the management board by providing advice.

compensation when corporate governance mechanism is weak. Third, high ownership concentration is prevalent among Chinese public firms. On average, the equity ownership held by the largest shareholder of a firm is more than 40% (Allen *et al.*, 2005). The concentrated ownership structure implies that the classical principal-agent conflict is likely to be of less concern because the controlling shareholders have sufficient incentives to monitor managers. On the other hand, the dominant position of state ownership in public firms could cause severe agency problems.

Institutional changes have occurred during the past decade in China and this leads to a more compelling study on the determinants of Chinese executive compensation. The reason is twofold. First, for Chinese CEOs, there is a high degree of state ownership and control of firms which is reinforced by a culture of high collectivism and high power-distance tolerance (Hofstede, 2003). Hence, academics cast doubt on whether the Chinese pay schemes are able to deliver substantial incentives for managers to promote shareholder welfare (Firth *et al.*, 2006). Second, China has a relatively weak legal environment compared to that of developed countries. From the perspective of minority shareholders protection and restriction of “managerial power,” effective corporate governance and a strong legal protection system are very important for preventing minority shareholders from expropriation by controlling shareholders (La Porta *et al.*, 1998). Although various regulatory actions on executive compensations have been taken in China over the past decades,<sup>4</sup> academics still question whether China’s corporate governance mechanisms are able to provide an adequate protection for investors (Allen *et al.*, 2005). Thus, starting in 2005, the Chinese government implemented a split-share structure reform program in the Chinese stock markets which aims to increase the proportion of shares that were freely

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<sup>4</sup> Such actions include increasing transparency of related party transactions, strengthening board independence, and adoption of the U.S. practices of incentive payment schemes (e.g., stock options).

tradable in the markets and also to pave the way for a decline in government ownership among public firms. Given the significant impact that the split-share structure reform could have on market liquidity and firms' control right, this study analyzes the role of firm performance, corporate ownership, and board structure in determining executive compensation.

This study contributes to the existing literature in several ways. First, this paper moves beyond the basic pay-performance setting by combining the agency-based theory with other alternatives such as corporate governance and board structure under an imperfect governance institution. I show that the weak corporate governance system in China could lead CEO compensation to a relation-based rather than a market-based contract. Second, this study takes into consideration the significant impact of split-share structure reform implemented in China. The goal of such a reform is to eliminate non-tradable shares and transfer non-tradable shares to tradable shares by compensating existing shareholders through various ways such as bonus shares, cash, and stock options. This mandatory institutional change has resulted in significant changes in ownership structure and firm liquidity thereby affecting executive compensation.

This study encompasses the most recent data after the mandatory institutional changes that occurred in 2005, while previous studies such as Firth *et al.* (2006, 2007) and Kato and Long (2006) use data from 1998-2004. Previous studies also reach inconsistent conclusions. For example, Firth *et al.* (2006, 2007) show that the pay-performance sensitivity in China is 0.021 and Kato and Long (2006) find that an additional \$1,000 of shareholder value is associated with 5.3 cents of additional executive compensation. In addition, Buck *et al.* (2008) use Chinese executive compensation data over 2000-2003, instead of testing the pay-performance sensitivity, they simply examine the causal relationship between executive compensation and firm performance and conclude that executive compensation and firm performance mutually affect



each other. Buck *et al.* (2008) point out that prior studies neglect the severe endogeneity problem between executive compensation and firm performance. Moreover, this study investigates the role of ownership structure and corporate control right in CEO compensation by considering the great impact of split-share structure reform in China started from 2005. This study is noteworthy because it isolates the possible flaws of data inconsistencies from previous research when significant changes were made to accounting reporting requirements and legislative regulations during the early 2000s in China. Further, given that the split-share structure reform has significant impacts on ownership structure and firm liquidity, Conyon and He's (2011) study is not inclusive because it does not take into account the impact of split-share reform. Thus, this study provides further evidence which leads to a better understanding of the role of institutional changes on Chinese executive compensation.

This study considers the impact of discriminated split-share structure reform on firm liquidity and corporate control in determining executive compensation in China. I move beyond the agency-based theory by examining the pay-performance sensitivity under imperfect governance institution using a novel sample of Chinese public firms over 2001-2010. The results reveal that there is a positive relationship between executive compensation and firm performance after controlling for corporate governance and other economic factors. Ownership concentration has significantly negative impacts on CEO compensation while firm size significantly contributes to the increases in Chinese executive compensation. The results also reveal that the establishment of compensation committees, CEO duality, and the involvement of state ownership may lead Chinese executive compensation to a relation-based rather than a market-based contract, suggesting that the government or board may ensure efficient incentives in business activities as a helping-hand when corporate governance is weak. The empirical results

have important implications for investors, board members, and regulators in better understanding the mechanisms of pay-performance setting in emerging markets where corporate governance is weak.

The rest of this chapter is organized as follows. Section 2 presents the literature review and develops the hypotheses. Section 3 describes the data and section 4 explains the methodology. In section 5, empirical results are reported, and Section 6 concludes.

## **2.2 Literature Review and Hypotheses**

Most literature investigates the relationship between executive compensation and firm performance within the agency-based framework in Anglo-Saxon economies (Core *et al.*, 2003; Kaplan, 1997, 1999). The agency-based theory suggests that the CEO compensation contract is determined by arms-length bargaining that leads to efficient outcomes (Holmstrom and Kaplan, 2003; Edmans and Gabaix, 2009). The agency theory predicts that executive compensation depends, at least in part, on changes in shareholder's wealth. Therefore, a positive relationship between management compensation and firm performance is in line with the theory that the higher the pay-performance sensitivity, the lower the level of "skimming" (Fama and Jensen, 1983; Jensen and Meckling, 1976). However, there are different types of firm performance measures associated with different pay-performance sensitivities for executive pay. Following Core *et al.* (1999), I measure firm performance by using both internal accounting performance and external market performance. The internal performance is determined from the accounting statement by using return on asset (*ROA*), while the external performance is measured by excess stock return (*ERET*) which is associated with stock-market performance. Thus, *ROA* and *ERET* provide different indicators of a firm's performance (Core *et al.*, 1999).

The agency-based theory, however, face challenges in the wake of the recent financial crisis. Executive compensation packages in the U.S. are criticized as being a major cause of the recent financial crisis (Bebchuk and Spamann, 2009). Bebchuk and Fried (2006) claim that U.S.-CEO compensation is inefficient “pay without performance” and it calls for systemic reform. Vallascas and Hagendorff (2012) examine CEO remuneration and bank default risk in the U.S. and Europe and find that banks with CEO stock options display higher default risk and pay incentives are related to higher bank risk particularly in weak regulatory environments. Nonetheless, previous studies using different data, techniques, and model specifications, generally find little evidence or only a very weak relationship to support the pay-performance setting (Jensen and Murphy, 1990; Kerr and Bettis, 1987). Hence, Garen (1994) concludes that the overall explanatory power of the empirical model for pay-performance sensitivity is quite low and this remains a puzzle in the analysis of executive compensation.

Jensen and Murphy (1990) suggest that researchers should examine factors outside an agency framework to explain CEO pay, or at least empirically test the explanatory value of alternative paradigms to agency-based models.<sup>5</sup> Accordingly, a growing body of literature shows that executive compensation is associated with a firm’s ownership structure, board characteristics, remuneration committee, the market for corporate takeover, or even the general public environment (Daily *et al.*, 1998; Jensen, 1993; Jensen and Murphy, 1990). Unfortunately, efforts to find a correlation between a firm’s governance attributes and its value in the Anglo-Saxon context mostly show weak or no results. For example, Bhagat and Black (1999) and Hermalin and Weisbach (2003) show that the number of independent directors on a firm’s board

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<sup>5</sup> See Barkema and Gomez-Mejia (1998) for a more comprehensive investigation of related theories including marginal productivity theory, information-processing theory, resource dependence theory, managerial discretion theory, and social comparison theory, *etc.*

(or whether the firm has a majority independent board) has no significant effect on firm performance. Similar results apply to either overt activism by institutional investors (Black, 1998; Karpoff, 2001), or insider share ownership (Demsetz and Lehn, 1985; Morck *et al.*, 1988). Meanwhile, ownership by outside block holders (Bhagat *et al.*, 2004) or a firm's committee structure (Klein, 1998) is also found to have no consistent effects on firm value. Hence, in the presence of inferior monitoring quality, executive compensation and monitoring activities of the board are argued to be substitutes and jointly contribute to the alleviation of agency problems (Core *et al.*, 2003; Hermalin and Weisbach 1998, 2003), thus, corporate governance has a powerful effect on executive compensation and firm value. In this study, following Kaplan (1994) and Kato *et al.* (2007) in their studies on executive compensation in Japanese and Korean firms, I gauge corporate governance by using ownership structure and board characteristics.

There is no stereotyped criterion for selecting specific measurers to proxy ownership structure; it depends on information availability and their appropriateness for model specification. Extant studies typically employ the shares of equity held by several of the largest investors, typically the top-five shareholders, or the Herfindahl index (Demsetz and Lehn, 1985). Some researchers such as Kapelyushnikov (2001) use equity stake of the largest shareholder. Haid and Yurtoglu (2006) investigate the relationship between ownership structure and executive compensation using a dataset from listed firms in Germany and find that identification of the owners has significant effects on the level of executive compensation.

Following Ongore (2011), ownership structure is measured in two dimensions: ownership concentration and ownership identity. According to Angelucci *et al.* (2002), studies that use either ownership concentration or ownership identity alone cannot claim to have exhaustively analyzed the relationship between ownership structure and firm performance. The explanations

provided by Cubbin and Leech (1983) show that the literature on ownership concentration focuses on the ability of the owners to monitor and control managerial discretion, but fails to take into consideration the investment preferences of the owners and how they affect the priorities and strategies of the firm. Conversely, studies on ownership identity effectively address the issues of risk aversion, wealth creation, and shareholder value, but are incapable of examining the powers to control and monitor management that are conferred by actual shareholding. Hence, this study hypothesizes that:

H1: Chinese executive compensation is a joint effort determined by firm performance and the quality of corporate governance such as ownership structure and board characteristics.

H2: There is a positive relationship between Chinese CEO compensation and firm performance under imperfect governance institution.

H3: Ownership concentration (the proportion of shares held by the largest shareholder) has negative effects on executive compensation.

H4: Chinese executive compensation is associated with the involvement of state ownership.

Prior research illustrates that higher-quality managers typically receive higher average compensation (Rosen 1981; Smith and Watts 1992; Core *et al.*, 1999). Thus, firms with greater growth opportunity (or lower Market-to-Book ratio are) expected to have higher levels of executive compensation. In this study, I use the Market-to-Book ratio to control for the potential influence of firm growth on ownership concentration and executive compensation. Specifically, I hypothesize that:

H5: Executive compensation is negatively associated with firm's Market-to-Book ratio.

Extant literature shows that capital structure is associated with firm performance. Capital structure changes should reflect a larger change in agency costs (Jensen, 1986), and thus a stronger information effect for firm value. Stulz (1999) argues that managers are typically better informed about expected future cash flows than investors and management has its own objectives that may differ from those of investors. As a result, managers and investors often disagree about expected cash flows. Because managers usually want to raise as much capital as they can, but investors do not believe that expected cash flows are as high as management forecasts. From this perspective, a firm's leverage depends crucially on its governance and also serves a measure of the firm's financial distress and potential firm risks. In this study, firm leverage is defined as the ratio of total debt to total equity. Accordingly, I hypothesize that:

H6: Executive compensation is positively associated with firm leverage.

The board of directors should consist of outsiders or independent directors because they are subject to less CEO influence and have reputations to protect in the labor market (Fama and Jensen, 1983). Inside directors tend to be more loyal to the CEO otherwise the CEO can exert power and influence over them by controlling factors such as their career opportunities (Core *et al.*, 1999). Moreover, large blockholders have both the incentives and the voting power to discipline CEOs (Shleifer and Vishny, 1997). Various studies also find that the presence of external blockholders is associated with stronger links between top management compensation and firm performance. In another words, more independent directors on the board are associated with less managerial opportunism and more efficient contracts. Thus, I hypothesize that:

H7: The larger the proportion of independent directors on the board, the lower the compensation of the executives.

Jensen (1993) argues that large boards are less effective than small boards, because large boards may suffer free-riding problems in decision-making and thereby diluting monitoring incentives for board members. Using 452 large U.S. companies, Yermack (1996) supports Jensen's theory and finds that there is an inverse relationship between board size and the firm's Tobin's Q. The result shows the major loss in firm value occurs when board size increases. Moreover, companies with smaller boards tend to have greater operating profitability and higher likelihood of CEO dismissal after poor firm performance. In addition, using a sample of about 900 Finnish firms, Eisenberg *et al.* (1998) find a negative relation between board size and firm's profitability measured by industry-adjusted return on asset. Their study enhances the explanatory power of board size in firm performance in a different context. Therefore, when determining executive compensation, a small board is more likely to constrain managerial power, while a large team may lead to an ineffectively functioning board and lower firm performance. Thus, another hypothesis can be generated as:

H8: Firms with larger board size tend to have higher executive compensation.

Board meeting frequency is also widely examined in previous studies. Vafeas (1999) studies 307 U.S. firms over 1990-1994 and shows that board meeting frequency is negatively associated with firm value. Furthermore, Vafeas (1999) finds that firm performance typically improves subsequent to the abnormal frequent board meetings, and such improvements are stronger in the firms that performed poorly before. These findings support Jensen's (1993) argument of board meeting being reactive instead of proactive. Hence I hypothesize that:

H9: Executive compensation is positively associated with board meeting frequency.

Jensen (1993) claims that when the CEO also serves as the chairman of the board, the lack of board independence makes it “extremely difficult for the board to respond early to failure in its top management team”. According to Jensen’s theory, when there is duality in the leadership position, the board is less likely to constrain executive power, and thus, executive compensation is more favorable towards the managers’ interests. Core *et al.* (1999) find that about 75% of firms have a CEO who is also the board chair in U.S. firms. In a more recent study using a sample period from 1998 to 2006, Agrawal and Nasser (2010) show that CEO duality is about 64% in the U.S. and in about 30% of the firms the CEO also serves on the board’s nomination or corporate governance committee. Empirical studies suggest that agency problems are higher when the CEO is also the board chair (Brickley *et al.*, 1997). Further evidence provided by Goyal and Park (2002) shows that CEO turnover is significantly less sensitive to firm performance when the positions are combined. The likelihood of CEO turnover increases only by 2.5% as the stock returns decline by one unit of standard deviation when the titles are combined, and 5.3% when the titles are separated. Hence this study hypothesizes that:

H10: Chinese executives who also served as a member or chairman on the board will have higher compensation levels.

The compensation committee is a very common subcommittee in Anglo-Saxon economies. This committee serves the main board that is responsible for setting executive compensation (Baker *et al.*, 1988). Previous research suggests that firms with compensation committees are more likely to design a better compensation contract in favor of the shareholders’ interests (Canyon and Peck, 1998; Newman and Mozes 1999; Vafeas, 2003). In the Chinese



context, Zhu *et al.* (2009) find that the involvement of a compensation committee in the corporate governance mechanism has substantial effects on executive compensation. Thus, I hypothesize that:

H11: The establishment of a compensation committee will negatively affect Chinese executive compensation.

Fernandes (2005), Patharsarathy *et al.* (2006) and Nourayi and Mintz (2008) all report that firm size is a main factor affecting executive compensation. Anecdotal evidence generally supports that CEO compensation are positively associated with firm size. Large firms typically require more talented managers because they are hard to manage, and thereby managers in large firms generally demand higher levels of compensation (Core *et al.*, 1999). Specifically, Parthasarathy *et al.* (2006) find that firm size has a positive and significant impact on compensation. Lazarides *et al.* (2008) also claim that firm size is a much better predictor of CEO compensation than other firm characteristics. Hence, this study uses firm size to control for the liquidity effect and I hypothesize that:

H12: Chinese executive compensation is positively associated with firm size.

This study further extends previous literature by taking into consideration the impact of institutional changes that occurred in China during the past two decades. I argue that the implementation of the Accounting Regulations for Business and Enterprise (ARBE) starting from 2001 has had a significant impact on firms' accounting data accuracy and disclosure transparency in China.<sup>6</sup> In addition, Chinese executive compensation disclosure is mandated by

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<sup>6</sup> DeFond *et al.* (1999) investigate how new auditing standards affect capital market credibility in China and find that the impact of improved auditor independence on audit market concentration signifies the effectiveness of China's corporate governance system.

the China Securities Regulatory Commission (CSRC) since 2001 and the information about the ultimate controlling shareholder is only available from 2001 in China. This study uses the 2001 amended dataset which avoids the possible inconsistencies and inaccuracy of earlier versions. Most importantly, this study investigates the role of ownership structure and corporate control in CEO compensation by considering the impact of split-share structure reform in China. Given the fact that split-share structure reform has a significant impact on the ownership structure and firm liquidity for Chinese public firms, Conyon and He's (2011) work is not inclusive because they do not take into account this development. This study argues that the split-share structure reform in China has significant impacts on corporate control and market liquidity. Hence, I take this effect into consideration and hypothesize that:

H13: The discriminated split-share structure reform has significant liquidity and control effects on Chinese executive compensation.

### **2.3 Data**

The sample consists of all listed A-share firms on the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) during the period from January 2001 to December 2010. The sample period begins in 2001 for several reasons: (1) The information about the ultimate controlling shareholder is only available from 2001 onwards in China; (2) The implementation of the Accounting Regulations for Business and Enterprise (ARBE) was in 2001, which has a significant impact on firms' accounting data accuracy and disclosure transparency; (3) The Chinese IPOs' issuance system has changed since 2001 with the new IPO approval system having significant influence on the ownership structure of listed shares; and (4) Chinese executive compensation disclosure has been mandated by the CSRC since 2001. I exclude all

financial firms with the first two-digit of their Global Industry Classification Standard (GICS) code being 40 due to their regulated features. I also eliminate companies concurrently issuing B-shares or H-shares and firms listed as Small and Middle Enterprises (SME) because they are subject to both domestic and overseas regulations relative to those companies that issue only A-shares, and also because cross-listings facilitate the calculation of the value of the sample companies. In addition, I drop observations with non-active status. The non-active firms include those firms marked as Special Treatment (ST), Pause Transaction (PT) or delisted. Finally, each selected variable is winsorized at 1% to control for the effect of outliers. The final sample consists of a total number of 10700 observations.

The data is collected from various issues of annual reports for Chinese publicly listed firms. I check the data consistency by using three major databases: the China Center for Economic Research (CCER) database, DataStream, and the Chinese Securities Market and Accounting Research (CSMAR) database. Both CCER and CSMAR provide the data on financial statement, stock market performance, and corporate governance for all firms listed on both SHSE and SZSE. Both datasets are widely used in previous research on Chinese financial market studies. A final sample adjustment is done when the largest shareholders are different from the ultimate controlling shareholders by examining the “Changes in Ownership and Information about Shareholders” section in the respective firm’s annual reports. Originally, the original data put “-95” to represent missing value and “6” to indicate that the identity of controlling shareholder is unknown. Starting from 1998, all the publicly listed firms in China are required by the CSRC to disclose top executive compensation in their annual reports according to the “Regulation for the Content and Format of Public Firms’ Information Disclosure, No. 2: Content and Format of Annual Reports”. In the 2001 amended version, listed firms are required

to report the sum of total compensation for the three-highest-paid management and the three-highest-paid board members (including executive board members). In the 2005 amended version, listed firms are required to report each individual board member's and top management's total compensation. In this study, I use both types of executive compensation: total management team compensation and the three-highest-paid executives' compensation. The former is the total remuneration to the members of the board of directors, the supervisory board, and senior management, the latter is the total annual cash compensation for CEO and two other highest-paid executives (often vice CEOs). To be consistent with the definitions of CEO compensation in the literature, compensation refers to the total cash compensation including base salary, bonuses, and commissions, not including the granting of stock options to executives. Equity incentive is rarely used in China because most listed firms are former SOEs and these companies only issue non-tradable shares to executives and employees, which cannot be sold in the public market.

Figure 1 and Figure 2 show that the mean and median executive compensation of Chinese public firms increase steadily over time from 1998 to 2010. Especially, after 2001, the mean and median management team compensation increases sharply from 0.216 million Chinese yuan (USD 0.03 million) to 1.12 million Chinese yuan (USD 0.17 million) in 2010. Seemingly, the median compensation of the three-highest-paid executives increased from 0.603 million Chinese yuan (USD 0.091 million) in 2001 to 2.86 million Chinese yuan (USD 0.433 million) in 2010. Moreover, the relative difference between the median compensation of the three-highest-paid executives and the total management team widens over time. Specifically, the difference increased from 0.123 million Chinese yuan (USD 0.019 million) in 1998 to 1.738 million Chinese yuan (USD 0.263 million) in 2010. Specifically, the split-share structure reform implemented in 2005 affects the median compensation of the three highest paid executives as

reflected by a big drop from 1.24 million Chinese yuan (USD 0.188 million) in 2004 to 0.75 million Chinese yuan (USD 0.114 million) in 2005. In comparison to the consequences on THP executives' compensation, the split-share structure reform has less effect on the total management team compensation, as the median management team compensation increased consistently over time from 1998 to 2010.

[Insert Figure 1 about here]

[Insert Figure 2 about here]

Starting from 2005, the CSRC launched a structural reform program called “Regulation for the Stock Options Grants of Public Firms.” The goal of this reform is to eliminate non-tradable shares and requires all listed companies to transfer non-tradable shares to tradable shares by compensating existing shareholders through various ways such as bonus shares, cash, and stock options. This mandatory institutional change has resulted in significant changes in the ownership structure and firm liquidity, and thus affects executive compensation.

Traditionally, there are five types of shares in Chinese domestic stock markets: (1) government shares, which are held by the State Assets Management Bureau (SAMB); (2) legal entity shares (or C-shares), which are held by other state-owned enterprises; (3) employee shares, which are held by managers and employees; (4) ordinary domestic individual shares (or A-share), which can be purchased only by Chinese citizens on the SHSE or the SZSE; and (5) foreign shares, which can be purchased only by foreign investors in Mainland China (B-share), in Hong Kong (H-share), or in the U.S. (N-share). The first three types of shares are not tradable in the official exchanges, although employee shares are allowed to be listed three years after the IPO. This reform was accompanied by a series of changes in the Corporate Law and Exchange

Law, which also paved the way for granting stock options to executives. In December 2005, the CSRC issued a trial version of “Regulation for the Stock Options Grants of Public Firms” effective in January 2006. This regulation allows public firms that have successfully completed structural reforms to offer stock options to their higher management, board, and supervisory board members. Therefore, I take this effect into account in the following empirical study to control for the liquidity and control effects on executive compensation.

Figure 3 reports the average proportion of shares held by the largest shareholder and the 2<sup>nd</sup> largest shareholder for Chinese public firms over 2001-2010. After the discriminated split-share structure reform implemented in 2005, the proportion of shares held by the largest shareholder dropped relative to those of the previous year. During 2001-2005, the stake of the largest shareholder is over 40%, while after year 2005, the proportion of shares held by the largest shareholder drops to around 35%. Meanwhile, the proportion of shares held by the 2<sup>nd</sup> largest shareholder remains almost at the same level of around 8-10%. In sum, Chinese public firms are highly concentrated and controlled by the largest shareholder while the 2<sup>nd</sup> largest shareholder typically has less power.

[Insert Figure 3 about here]

Figure 4 and Figure 5 illustrate that the discriminated split-share structure reform has great impact on market capitalization and firm liquidity. The market capitalization of the Chinese stock markets has increased remarkably since 2005. The average market value of the listed firms is 2.081 billion Chinese *yuan* (equivalent to USD 0.315 billion) in 2005; however, the mean market capitalization in 2010 jumped to 12.06 billion Chinese *yuan* (equivalent to USD 1.827 billion). Meanwhile, firms’ liquidity represented as turnover ratio follows the same pattern.

Figure 5 shows that the average turnover ratio of the public firms experienced an accelerating increase over 2001--2010. Over the sample period 2001--2004, the average market capitalization and firms' liquidity maintained at a relatively lower but very stable level, while after the split-share structure reform, both firms' market capitalization and firms' liquidity increased significantly, although there is a big drop in 2008 due to the recent financial crisis.

[Insert Figure 4 about here]

[Insert Figure 5 about here]

Table 1 presents the summary of descriptive statistics. The mean logarithm of *THP* executive compensation is 9.318 over the entire sample period, ranging from a high of 11.656 to a low of 6.726. The mean logarithm of total management team compensation is 8.585, ranging from a high of 10.669 to a low of 6.011. The mean *ROA* is very low (0.028) and left-skewed (-1.197), while the mean *ERET* is negative (-0.57) with a negative skew of -0.68. The statistics on firm performance indicates that the distributions of *ROA* and *ERET* are left-skewed, implying potential violation of the normality assumption. Over the sample period, the maximum logarithm of firm size is 28.44 and the minimum value is 16.826, the standard deviations of firm size, firm leverage, and *M/B* are all very high, implying potential variations of economic characteristics across the firms. On average, the largest shareholder holds more than 39.6% of the total shares, the highest shareholding is 76.9%, and the lowest shareholding is 9.6%. In addition, the statistics shows that most firms have compensation committees or state ownership, and these firms also have executives serving as a chair or a member on the board.

[Insert Table 1 about here]

Further examination from the correlation matrix in Table 2 illustrates that *LnTHP* and *LnMAG* are highly correlated (0.855). Firm performance measured by *ROA* has a stronger positive correlation with executive compensation (0.282 and 0.284), while *ERET* has a weaker correlation with *LnTHP* (0.079) and a negative correlation with *LnMAG* (-0.104). Combined with the small mean value of *ROA* (0.028) and the negative excess return value of *ERET* (-0.570) in Table 1, the data shows that executive compensations in Chinese public firms are associated with firm performance and other firm characteristics. The table also shows that board meeting frequency and ownership concentration are negatively associated with Chinese executive compensation. There are no significant coefficients exceeding 0.5, implying that multicollinearity should not be a problem in the model specification.

[Insert Table 2 about here]

## 2.4 Methodology

Following Leone *et al.* (2006), I use the total cash compensation as the measure of executive compensation without consideration of the equity incentives or option grants. The total cash compensation includes base salary, bonuses, and commissions. I focus on cash compensation because the cash compensation can be viewed as ex-post compensation depending on past and current performance (Gaver and Gaver, 1998; Comprix and Mueller, 2006) and equity-based incentives are rarely utilized in China.

Executive compensation is widely known to be affected by economic factors. Murphy (1999) provides an authoritative review of the economic determinants of CEO pay and empirical evidence amassed for the U.S. economy. However, high executive compensation does not necessarily guarantee the reduction of agency costs. A large body of literature also illustrates that



executive compensation is associated with corporate governance mechanism and board structure. Examining the conventional proxies utilized in empirical research, I expect that economic factors, such as firm performance, size, Market-to-Book ratio, industry, leverage, ownership structure, and board characteristics are all determinants of executive compensation. On the other hand, this study ignores the “human capital” approach towards managerial compensation. Human capital variables like age, education, experience, and CEO tenure are not considered in this study. The relative importance of human capital variables and firm-specific variables in explaining executive compensation can be of an interesting area for future research.

Following the spirit of previous research and the methodology used by Kaplan (1994) and Kato *et al.* (2007) in their studies on executive compensation in Japanese and Korean firms, I assume that Chinese executive compensation is a joint effort determined by firm performance and the quality of corporate governance such as ownership structure and board characteristics. The advantage of this specification is that the regression coefficients on the board and ownership structure variables measure the proportionate effect of each variable on compensation, rather than the dollar-value effect. Since the sample firms are generally large firms, the dollar value specification may be appropriate; nevertheless, the logarithmic transformation directly addresses this issue (Core *et al.*, 1999). Specifically, the cross-sectional ordinary least square (OLS) regression models can be expressed as follows:

$$\begin{aligned}
 LnTHP_{i,t} / LnMAG_{i,t} = & \beta_0 + \beta_1 ROA_{i,t} + \beta_2 LnSIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 M/B_{i,t} + \beta_5 LnMEET_{i,t} \\
 & + \beta_6 LnBOARD_{i,t} + \beta_7 IDR_{i,t} + \beta_8 SHARE1_{i,t} + \beta_9 CTRL_{i,t} \\
 & + \beta_{10} CTRL_{i,t} * SHARE1_{i,t} + \beta_{11} DUAL_{i,t} + \beta_{12} COMP_{i,t} + \beta_{13} SIC_{i,t} \\
 & + \beta_{14} YEAR_{i,t} + u_{i,t}
 \end{aligned} \tag{1}$$

$$\begin{aligned}
LnTHP_{i,t}/LnMAG_{i,t} = & \beta_0 + \beta_1 ERET_{i,t} + \beta_2 LnSIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 M/B_{i,t} + \beta_5 LnMEET_{i,t} \\
& + \beta_6 LnBOARD_{i,t} + \beta_7 IDR_{i,t} + \beta_8 SHARE1_{i,t} + \beta_9 CTRL_{i,t} \\
& + \beta_{10} CTRL_{i,t} * SHARE1_{i,t} + \beta_{11} DUAL_{i,t} + \beta_{12} COMP_{i,t} + \beta_{13} SIC_{i,t} \\
& + \beta_{14} YEAR_{i,t} + u_{i,t}
\end{aligned} \tag{2}$$

Where the selected variables are defined as follows:

*LnTHP* is the natural logarithm of the three-highest-paid executive compensation adjusted for annual inflation.

*LnMAG* is the natural logarithm of the total management team compensation adjusted for annual inflation.

*ROA* is return on assets defined as the ratio of annual earnings before interest and taxes to total assets for the prior year.

*ERET* is excess stock return defined as the yearly stock market return relative to the market return on value-weighted Shanghai Composite Stock Index for the prior year.

*LnSIZE* is the natural logarithm of the total market capitalization.

*LEV* is leverage, or ratio of total debt to total equity in book value.

*M/B* is the Market-to-Book ratio calculated by dividing the year-end closing price of the stock by the latest quarter's book value per share.

*LnMEET* is the natural logarithm of the number of board meetings per year.

*LnBOARD* is the natural logarithm of the number of persons in the board.

*IDR* is the ratio of number of independent directors to the total number of directors in the board.

*SHARE1* is the proportion of shares held by the single largest shareholder.

*CTRL* is a dummy variable which takes the value of 1 if the firm is state controlled, and 0 otherwise.

*DUAL* is a dummy variable which takes the value of 1 if the CEO serves simultaneously as a board director, and 0 otherwise.

*COMP* is a dummy variable which takes the value of 1 if the firm has a compensation committee and 0 otherwise.

*SIC* are industry dummy variables which take the value of 1 and 0 otherwise for a specific industry classified by GICLS issued by the CSRC.

*YEAR* are year dummy variables which take the value of 1 and 0 otherwise for a specific year over the entire sample period.

## 2.5 Empirical Results

### 2.5.1 Empirical Results from Cross-Sectional Regressions

Table 3 reports the primary results from the cross-sectional regressions. Model (1) and Model (3) show that CEO compensation responds significantly to firm performance. For example, the coefficients of *ROA* on *LnTHP* (2.908) and *LnMAG* (2.750) are both significantly positive, which indicate that an increase in CEO compensation is in line with shareholders' wealth. Seemingly, Model (2) and Model (4) show that Chinese executive compensation is positively associated with firms' market performance. The coefficients of *ERET* on *LnTHP* (0.284) and *LnMAG* (0.053) are both positive and significant, which is consistent with the prediction of hypothesis 2. The results also show that CEO compensation is associated with other firm economic factors such as *M/B* ratio, firm size, and firm leverage. The results seem to support agency theory and are consistent with previous findings of Firth *et al.* (2006, 2007) and Kato and Long (2006).

Table 3 also illustrates that the discriminated split-share structure reform has significant liquidity and control effects on Chinese executive compensation. Model (1) and Model (3) show that CEO compensation is negatively affected by ownership concentration. A one-unit increase in the proportion of shares held by the largest shareholder tends to decrease  $LnTHP$  by 0.892 per cent. A one-unit increase in the proportion of shares held by the largest shareholders tends to reduce  $LnMAG$  by 0.751 per cent. On the other hand, firm size has significantly positive effects on Chinese executive compensation. A one percent change in  $LnSIZE$  tends to increase  $LnTHP$  by 0.358 and  $LnMAG$  by 0.33 per cent. After the split-share structure reform was implemented in China, the reduction of state ownership and increase in firm liquidity facilitate the rises in Chinese executive compensation. Although the proportion of shares held by the largest shareholder reduced, the liquidity effects can partially interpret why Chinese executive compensation increases remarkably after 2005.

Table 3 also shows that Chinese executive compensation has a significant relationship with the involvement of state ownership and board characteristics. Board meeting frequency, board size, and the involvement of independent director on board all have significantly positive effects on executive compensation, suggesting that the government or board may ensure efficient incentives in the business activities as a helping-hand when corporate governance is weak. The results are consistent with previous findings of Shleifer and Vishny (1997), La Porta *et al.* (2000) and Chang *et al.* (2004).

Table 3 illustrates that CEO duality has no significant impact on CEO compensation and the effect of state ownership on executive compensation is combined with ownership concentration. Interestingly, the coefficients of  $COMP$  are all positive and significant, contradicting the prediction of hypothesis H11. The presence of a compensation committee

appears to be friendly and facilitate higher level of executive compensation<sup>7</sup>. The results seem to support that the Chinese pay practice follows a relation-based rather than a market-based compensation contract.

[Insert Table 3 about here]

### 2.5.2 Empirical Results from Quantile Regressions

Following Koenker and Bassett (1978), I construct the following linear quantile regression model to obtain a more comprehensive and robust analysis. One advantage of using such a model is that it is more robust in response to potential outliers. Moreover, quantile regression is a nonparametric method estimated by the median, rather than the mean which is used by ordinary least squares (OLS) regression. Specifically, the estimated linear  $\tau^{\text{th}}$  quantile model can be written as

$$Y_{it} = \alpha_i + \chi_{it}^{\tau} \beta_{\tau} + e_{it}, \quad i = 1, 2, \dots, N; t = 1, 2, \dots, T. \quad (3)$$

where the  $\tau^{\text{th}}$  quantile estimator of  $\beta_{\tau}$  is

$$\hat{\beta}_{\tau} = \text{Arg min}_{\beta \in R} \sum_i^N \rho_{\tau}(y_{it} - x_{it}^T \beta_{\tau}) \quad (4)$$

Table 4 reports the empirical results from quantile regression by using the 50 percentile (or median) of the selected variable. The results indicate that CEO compensation responds positively to firm performance. For example, the coefficients of *ROA* on *LnTHP* (3.156) and *LnMAG* (3.011) are both significantly positive, which indicate that an increase in CEO compensation is in line with shareholders' wealth. Seemingly, the results show that Chinese

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<sup>7</sup> Conyon and Peck (1998) find that a remuneration committee is associated with higher CEO pay level because outsiders or directors in the committee are not intimately familiar with the internal affairs of a company.

executive compensation is positively associated with firms' market performance. The coefficients of *ERET* on *LnTHP* (0.285) and *LnMAG* (0.042) are both positive and significant, which is consistent with the prediction of hypothesis H2. The results also illustrate that CEO compensation is associated with other firm economic factors such as *M/B* ratio, firm size, and firm leverage. The results are consistent with the predictions of agency theory.

The results from Table 4 reveal that the discriminated split-share structure reform has significant liquidity and control effects on Chinese executive compensation. Chinese executive compensation is negatively affected by ownership concentration; on the other hand, firm size has significantly positive effects on Chinese executive compensation. After the split-share structure reform was implemented in China, although the proportion of shares held by the largest shareholder reduced, the liquidity effects can partially interpret why Chinese executive compensation increases remarkably after 2005.

Table 4 also shows that Chinese executive compensation has a significant relationship with the involvement of state ownership and board characteristics. Board meeting frequency, board size, and the involvement of independent director on board all have significantly positive effects on executive compensation, suggesting that the government or board may ensure efficient incentives in the business activities as a helping-hand when corporate governance is weak. However, CEO duality has no significant impact on CEO compensation and the effect of state ownership on executive compensation is combined with ownership concentration. Interestingly, the coefficients of *COMP* are all positive and significant, suggesting that the presence of a compensation committee appears to be friendly and facilitate higher level of executive compensation. The results confirm the previous findings from Table 3 that the Chinese pay practice seems to follow a relation-based rather than a market-based compensation contract.

[Insert Table 4 about here]

### 2.5.3 Empirical Results from Panel Regressions

I further use a fixed-effect panel regression model to isolate the within effect throughout the variables. The panel estimating model can be expressed as

$$y_{it} = \alpha_i + x_{it}\beta' + \varepsilon_{it} \quad (i = 1, \dots, N; t = 1, \dots, T) \quad (5)$$

where  $y_{it}$  is the dependent variable observed for individual  $i$  at time  $t$ ,  $x_{it}$  is the time-variant  $1 \times k$  regressor matrix,  $\beta$  is the estimated coefficient,  $\alpha_i$  is the unobserved time-invariant individual effect,  $\varepsilon_{it}$  is the error term and it is independent and identical with normal distribution in the form of  $\varepsilon_{i,t} \sim \text{i.i.d.N}(0, \sigma_\varepsilon^2)$  (Moulton, 1986). The random effect model uses a generalized least squares (GLS) method and assumes that  $\alpha_i$  is a stochastic process and the regressor  $x_{it}$  is not correlated with the individual effects  $\alpha_i$ , in another words,  $E\{\alpha_i | x_{it}\} = 0$ ; however, the fixed effect model allows for endogeneity of the regressors with the individual effects. It states that  $\alpha_{it} = \alpha_i + v_{it}$ , where  $\alpha_i$  is time-invariant and denotes the unobservable individual specific effect, while  $v_{k,t}$  denotes the remainder disturbance and follows normal distribution such that  $v_{it} \sim \text{i.i.d.N}(0, \sigma_v^2)$ . In another word, if  $\alpha_i$  and the regressor  $x_{it}$  are correlated, then fixed effects model is preferred because it accounts for any individual-specific effect that is not included in the regression and controls for unobserved heterogeneity. When this heterogeneity is constant over time and correlated with independent variables, this constant  $\alpha_i$  can be removed from the data by taking the first difference. In this case,  $\alpha_i$  is assumed to be a fixed parameter to be estimated. More specifically, the fixed effect model can be written as

$$y_{it} = \alpha_i + v_{it} + x_{it}\beta' + \varepsilon_{it} \quad (6)$$

It is common to find explanatory variables of interest in panel data sets that are time invariant, (e.g. race, sex, regional location). In a fixed effects model these variables are “swept away” by the within estimator of the coefficients on the time-varying covariates. Hausman and Taylor (1981) analyze models in which some of the variables (both time varying and time invariant) are endogenous. Baltagi (1995) provides a comprehensive treatment of panel data models in the contexts of both single equation and systems methods. Any variables with a within standard deviation of zero will be dropped from the fixed effect model, because the coefficients on these variables may not be well identified as the others. The null hypothesis that  $x_{it}$  and  $\alpha_i$  are uncorrelated can be tested by comparing the within and random estimators, which is suggested by Hausman(1978). If the Chi square is greater than critical value, it rejects the null that the random effect estimator is consistent, indicating that the fixed effect estimator is appropriate.

Table 5 reports the empirical results from panel regression by using fixed effect GLS model. The results indicate that CEO compensation responds positively to firm performance. For example, the coefficients of *ROA* on *LnTHP* (1.448) and *LnMAG* (1.750) are both significantly positive, which indicate that an increase in CEO compensation is in line with shareholders’ wealth. Seemingly, the results show that Chinese executive compensation is positively associated with firms’ market performance, although the coefficients of *ERET* on *LnTHP* (0.236) and *LnMAG* (0.013) are positive and marginally significant. The results are consistent with the prediction of hypothesis H2 and in line with agency theory. Further examination shows that CEO compensation is also associated with other firm economic factors such as *M/B* ratio, firm size, and firm leverage.

Table 5 also shows that Chinese executive compensation has a significant relationship with ownership structure. The state ownership *CTRL* and ownership concentration *SHARE1* are



both positive. Moreover, board characteristics such as board meeting frequency, board size, and the involvement of independent director on board all have significantly positive effects on executive compensation, suggesting that the government or board may ensure efficient incentives in the business activities as a helping-hand when corporate governance is weak. Meanwhile, CEO duality has very weak effects on CEO compensation and the coefficients of *COMP* are all positive and significant, suggesting that the presence of a compensation committee appears to be friendly and facilitate higher level of executive compensation. The results confirm the previous findings from the cross-sectional regressions and quantile regressions.

[Insert Table 5 about here]

#### 2.5.4 Endogeneity and Dynamic GMM Estimations

To control for unobserved specific factors and the endogeneity problem, I further employ the dynamic Generalized Method of the Moments (GMM) method (Arellano and Bond, 1991) by taking the first difference to eliminate individual specific effects and time-invariant explanatory variables. Moreover, the dynamic GMM procedure is also capable of addressing endogeneity problems. Specifically, the dynamic GMM estimation process can be expressed as

$$Y_{i,t} = \alpha_i + \gamma Y_{i,t-1} + \sum_{j=1}^K \chi_{it}^j \beta_j + \varepsilon_{it}, \quad i = 1, 2, \dots, N; t = 1, 2, \dots, T. \quad (7)$$

It is well known that a serious problem arises when one wishes to estimate the above equation using OLS. Arellano and Bond (1991) develop a GMM estimator that solves this problem. Their method takes first differences of the model, removing the state effects and producing an equation that is estimable using instrumental variables in which endogenous explanatory variables are instrumented with suitable lags of their own. Blundell and Bond (1998)

propose a model in which lagged differences are employed in addition to the lags of the endogenous variables, producing more robust estimations in comparison with the Arellano and Bond (1991) method which becomes weak as the autoregressive processes becomes persistent.

GMM estimations are said to be consistent if there is no second-order autocorrelation in the residuals and the instruments employed are valid. The most common test employed to verify the validity of instruments in this GMM setup is the Sargan (1958) test of over-identifying restrictions. I employ the system GMM (SGMM) model proposed by Blundell and Bond (1998) to estimate dynamic panel regressions while observing the correct identification of the model. As done in a related context by Edison *et al.* (2002), dynamic panels handle the potential endogeneity of explanatory variables. In this case, the model also takes into account feedback effects from CEO compensation to firm performance.

One thing has to be mentioned is that Arellano and Bond (1991) develop the AB (2) statistic that tests for lack of second-order serial correlation in first-difference residuals. Baltagi *et al.* (2009) discuss the moment conditions that utilize the orthogonality conditions between the differenced errors and lagged values of the dependent variable. On the two diagnostic tests to check for first-order and second-order serial correlation in the disturbances, they state that “one should reject the null of the absence of first order serial correlation and not reject the absence of second order serial correlation.” Since the first-order serial correlation is fairly common in the residuals, applied work has emphasized by using both AB (2) and the Sargan statistic as the standard statistical tests of the SGMM estimator.

Table 6 reports the estimated results from the dynamic GMM model and shows that CEO compensation is positively associated with firm value (reflected by the significant coefficients on

*ROA* as of 1.969 and 1.744) and market performance (reflected by the significant coefficients on *ERET* as of 0.496 and 0.190), suggesting that Chinese pay practice follows a dynamic adjustment process and is consistent with agency theory.

Table 6 also shows strong liquidity and control effects of the split-share structure reform. Table 6 also indicates that executive compensation is negatively affected by ownership concentration. The reduction in proportion of shares held by the largest shareholder tends to decrease CEO compensation. On the contrary, firm size is positively associated with Chinese executive compensation as large firms tend to pay executives higher due to liquidity effects. Although ownership concentration decreased, firm liquidity boosted Chinese CEO compensation. The results can partially explain the remarkable increases in Chinese executive compensation after the split-share structure reform.

Further, Table 6 shows that the board characteristics have significant influence on executive compensation. Board meeting frequency, the number of independent directors on the board and board size are all important factors affecting CEO compensation. For example, the pay elasticity of board size is 0.289 for *LnTHP* and 0.03 for *LnMAG*. Seemingly, the positive coefficients of *IDR* on *LnTHP* (0.266) and on *LnMAG* (0.301) indicate that a one percent increase in the proportion of independent directors on the board increase the three-highest-paid CEO compensation by 0.266% and the total management team compensation by 0.301%. The results suggest that Chinese CEO compensation is affected by board characteristics.

Table 6 also illustrates that Chinese executive compensation is negatively affected by state ownership but positively associated with compensation committee. The presence of a compensation committee seems to facilitate the executives having a higher level of compensation

(reflected by the positive coefficients such as 0.918, 1.426, 0.223 and 0.029). This finding is interesting because it contradicts the predicted sign of previous studies. Finally, the empirical results show that CEO duality has no significant impact on CEO compensation. In sum, the results appear to support that Chinese executive compensation follows a relation-based rather than a market-based contract.

[Insert Table 6 about here]

### **2.5.5 The Effects of Split-Share Reform on CEO Compensation**

Extant research doesn't include the split-share structure reform as a policy variable to differentiate executive incentive compensation and the pursuit of executive self-interests. In view of the difference in corporate governance objectives and incentive compensation mechanism among the public firms in China, this study highlights that the split-share structure reform has facilitated the practice of a performance-based incentive compensation system to a large extent, especially for SOEs. Therefore, I take the split-share reform as the cutting ridge by constructing a *REFORM* dummy being "1" if the fiscal year is less than 2005, and "0" otherwise. I then conduct a comparative study on the impact of the reform towards executive incentive compensation by taking into account both *ROA* and *ERET* as corporate performance indicators. Table 7 shows that the split-share structure reform has significant and positive effects on Chinese executive compensation throughout the sample years, the four types of cross-sectional regressions all report significant coefficients of 0.241, 0.252, 0.255 and 0.360, indicating that the average executive compensation increased around 24-36% after the split-share structure reform. The results reveal that the discriminated split-share structure reform has significant liquidity and control effects on Chinese executive compensation. Chinese executive compensation is

negatively affected by ownership concentration; on the other hand, firm size has significantly positive effects on Chinese executive compensation. After the split-share structure reform was implemented in China, although the proportion of shares held by the largest shareholder reduced, increases in firm size contribute to the rises in Chinese executive compensation remarkably due to liquidity effects after 2005. In sum, the results support that the split-share structure reform as a signal of institutional change is an important factor that affects Chinese executive incentives and corporate performances.

[Insert Table 7 about here]

## 2.6 Conclusion

This study examines the relationship between executive compensation, firm performance and liquidity, and corporate governance by using a novel sample of Chinese dataset over 2001-2010. The empirical results reveal that Chinese executive compensation has increased remarkably since the split-share structure reform implemented in 2005. Moreover, the relative difference in executive compensations between the three-highest-paid executives and the total management team widens over time. The results suggest that the split-share structure reform as a signal of institutional change has a significant impact on Chinese executive incentives and corporate performances.

The results seem to support agency theory and are consistent with previous findings of Firth *et al.* (2006, 2007) and Kato and Long (2006) that there is a significantly positive relationship between Chinese executive compensation and firm performance measured by either *ROA* or *ERET*, suggesting that rises in Chinese CEO compensation are in line with shareholders'

wealth. Seemingly, Chinese executive compensation responds positively to increases in firm's stock market excess return.

The results support the liquidity and control effects of split-share structure reform on Chinese executive compensation. The split-share structure reform has significant and positive effects on Chinese executive compensation after 2005. Chinese executive compensation is negatively affected by ownership concentration. The increase in number of shares held by the largest shareholder tends to decrease CEO compensation. However, firm size is positively associated with Chinese executive compensation and large firms tend to have a higher level of executive compensation. Although ownership concentration decreased, firm liquidity boosted Chinese CEO compensation. The results can partially explain the remarkable increases in Chinese executive compensation after the discriminated split-share structure reform.

The results also show that board characteristics have significant impacts on Chinese CEO compensation. Board meeting frequency, the number of independent directors on the board, and board size are all important factors that positively affect CEO compensation. The results are consistent with previous findings of Shleifer and Vishny (1997), La Porta *et al.* (2000) and Chang *et al.* (2004) that the government or board may ensure efficient incentives in business activities as a helping-hand when corporate governance is weak.

The study illustrates that the involvement of state ownership tends to have negative impacts on Chinese CEO compensation, while the compensation committee seems to be friendly and facilitates the management team to have a higher level of compensation. The result is in line with Frantz and Instefjord's (2009) under-provision of governance, suggesting that the pay practice in China takes the form of establishing a friendly remuneration committee. Moreover,

CEO duality has no significant influences on Chinese executive compensation. In sum, it seems that Chinese executive compensation follows a relation-based rather than a market-based compensation contract. The empirical results have important implications for investors, board members and regulators to better understand the mechanisms of pay-performance setting in emerging markets where corporate governance is weak.

Figure 2.1 Mean Chinese Executive Compensation

The figure depicts the mean executive compensation for Chinese public firms by year from 1998 to 2010. THP is the three-highest-paid executive compensation, while MAG is the total management team compensation (in million Chinese *yuan*).

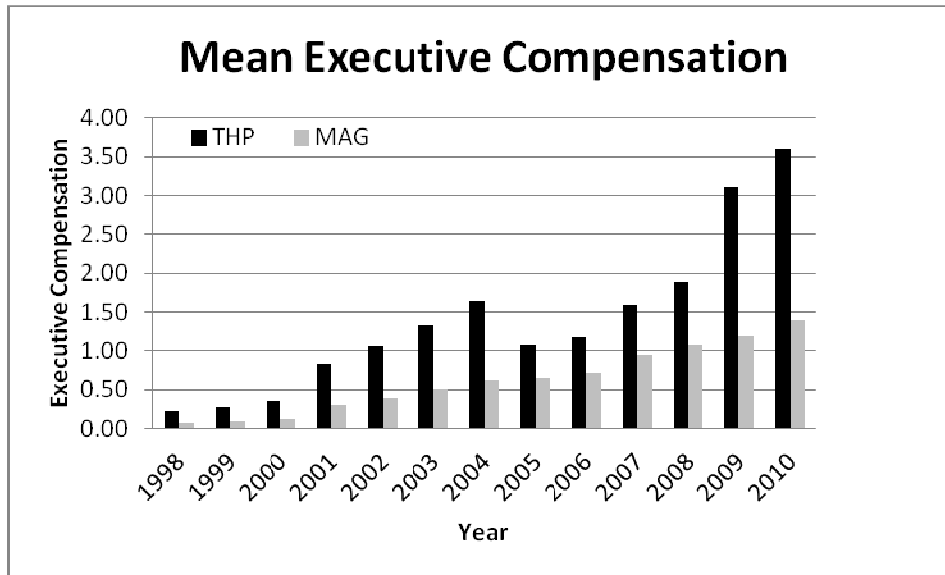




Figure 2.2 Median Chinese Executive Compensation

The figure depicts the median executive compensation for Chinese public firms by year from 1998 to 2010. THP is the three-highest-paid executive compensation, while MAG is the total management team compensation (in million Chinese *yuan*).

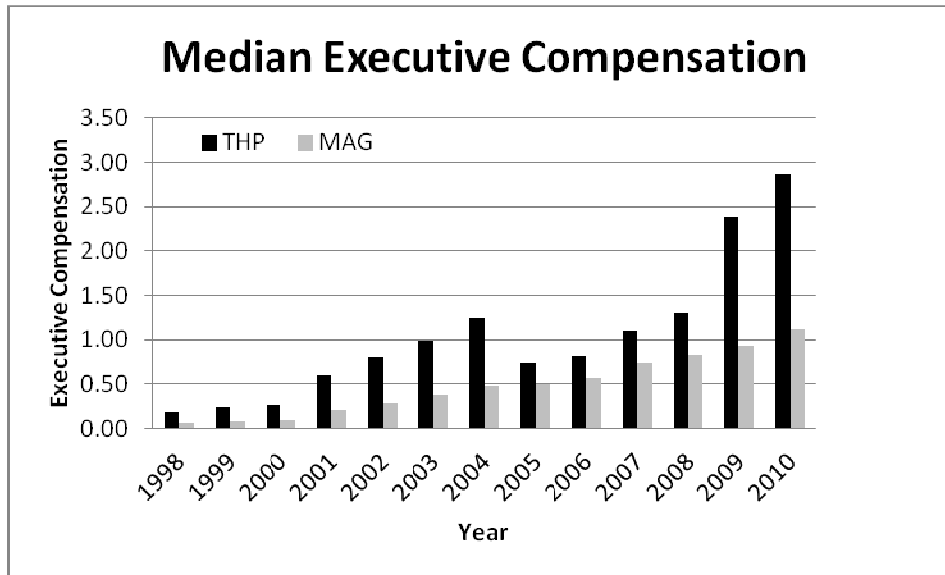


Figure 2.3 Ownership Concentrations of Chinese Public Firms 2001-2010

The figure depicts the mean ownership concentration for Chinese public firms by year from 2001 to 2010. The black bar depicts the mean proportion of shares held by the largest shareholder (Ownership1), while the grey bar depicts the mean proportion of shares held by the second largest shareholder (Ownership2). The values on y-axis are expressed in percent.

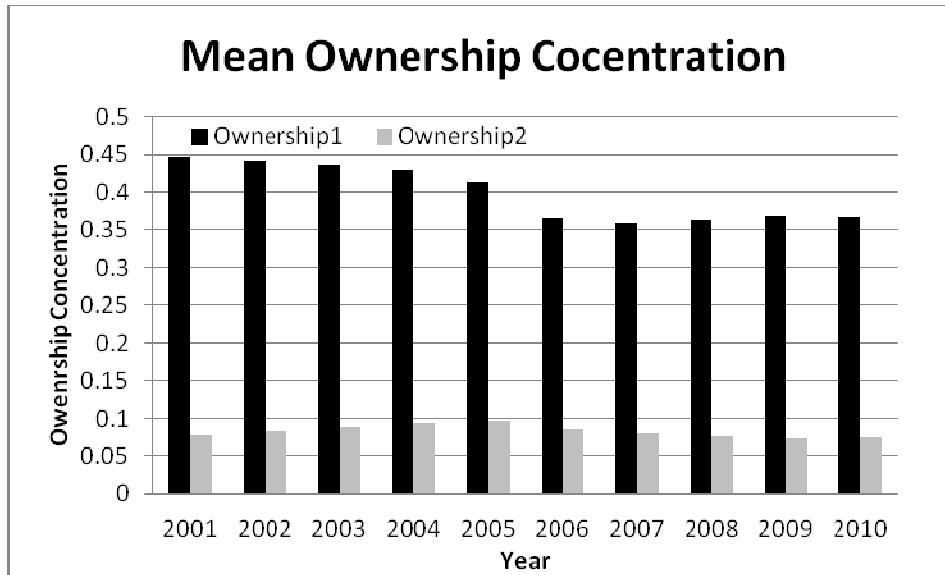


Figure 2.4 Market Capitalizations of Chinese Public Firms 2001-2010

The figure depicts the mean and median market capitalization for Chinese public firms by year from 2001 to 2010. The grey bar depicts the mean market capitalization (Mean Mcap), while the solid line depicts the median market capitalization (Median Mcap). The values on y-axis are expressed in billion Chinese *yuan*.

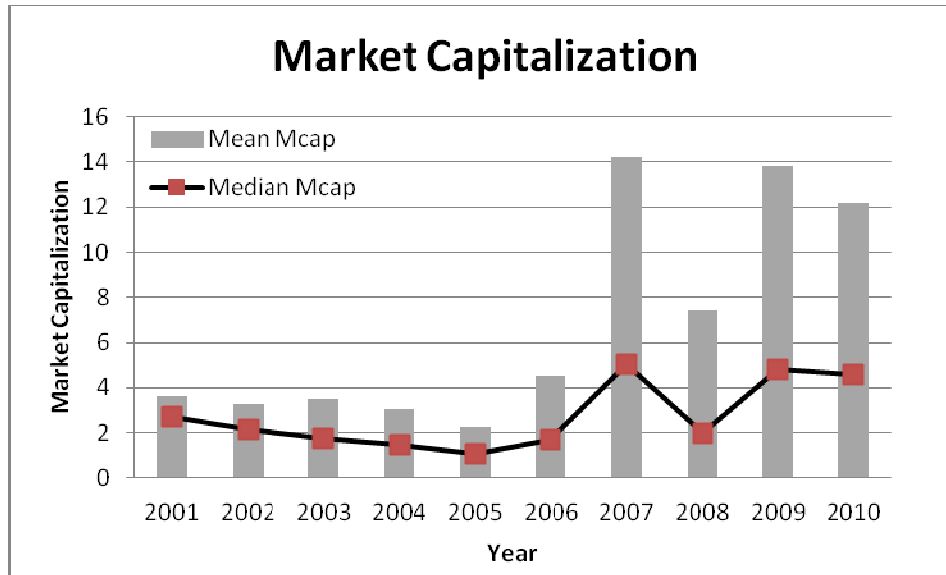


Figure 2.5 Turnover Ratio of Chinese Public Firms 2001-2010

The figure depicts the mean turnover ratio for Chinese public firms by year from 2001 to 2010. The values on y-axis are the turnover ratio calculated as the daily number of shares traded divided by total shares of outstanding times 100.

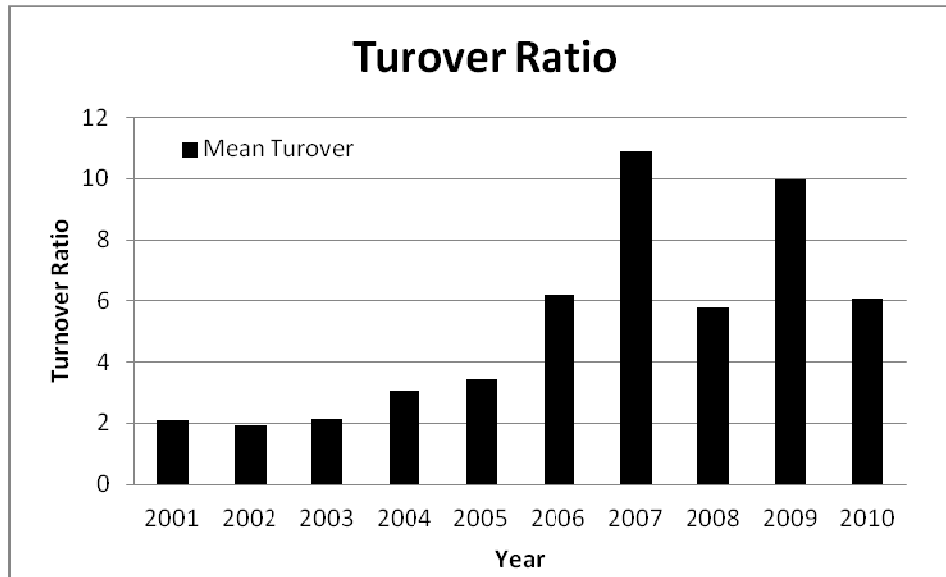


Table 2.1 Descriptive Statistics

This table reports the descriptive statistics for each variable for Chinese public firms over the sample period 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values.

	N	Mean	S.D.	Median	Min	Max	Skewness	Kurtosis
LnTHP	10698	9.318	0.972	9.328	6.726	11.656	-0.100	2.902
LnMAG	10698	8.585	0.924	8.648	6.011	10.669	-0.265	2.920
ROA	10700	0.028	0.060	0.028	-0.228	0.189	-1.197	7.923
ERET	10625	-0.570	0.694	-0.386	-2.639	0.547	-0.680	2.719
LnSIZE	10625	21.753	1.049	21.612	16.826	28.437	0.959	4.881
LEV	10700	1.304	1.119	1.012	0.069	6.768	2.278	10.005
M/B	10700	3.771	2.946	2.841	0.798	16.931	2.128	8.323
LnMEET	10698	2.039	0.396	2.079	0.000	4.025	0.060	3.779
LnBOARD	10698	1.842	0.298	1.792	0.000	2.944	-0.442	5.765
IDR	10698	0.507	0.213	0.500	0.000	1.250	0.086	5.372
SHARE1	10698	0.396	0.165	0.379	0.096	0.769	0.284	2.152
CTRL	10700	0.241	0.428	0.000	0.000	1.000	1.211	2.466
DUAL	10700	0.874	0.332	1.000	0.000	1.000	-2.254	6.082
COMP	10698	0.664	0.472	1.000	0.000	1.000	-0.696	1.484

Table 2.2 Correlation Matrix

This table reports the Pearson correlation matrix between each variable for Chinese public firms over the sample period 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. The total number of observations is 10700. The asterisk \* denotes the significance at the 5% level.

	LnTHP	LnMAG	ROA	ERET	LnSIZE	LEV	M/B	LnMEET	LnBOARD	IDR	SHARE1
LnTHP	1										
LnMAG	0.855*	1									
ROA	0.282*	0.284*	1								
ERET	0.079*	-0.104*	0.107*	1							
LnSIZE	0.458*	0.438*	0.399*	-0.046*	1						
LEV	0.052*	0.065*	-0.338*	-0.078*	-0.034*	1					
M/B	0.068*	0.089*	0.159*	-0.024*	0.306*	0.142	1				
LnMEET	0.142*	0.194*	-0.009	-0.160*	0.141*	0.131	0.086*	1			
LnBOARD	-0.015	-0.098*	0.011	0.106*	0.066*	-0.017	-0.059	-0.114*	1		
IDR	0.229*	0.330*	0.046*	-0.194*	0.088*	0.088	0.005*	0.187*	-0.607*	1	
SHARE1	-0.073*	-0.108*	0.144*	0.124*	0.195*	-0.064	-0.070*	-0.091*	0.063*	-0.104*	1

Table 2.3 Cross-sectional Regressions

This table reports the cross-sectional regression results on the determinants of Chinese executive compensation for Chinese public firms over the sample period 2001-2010. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

		Model (1)	Model (2)	Model (3)	Model (4)
Dependent Variables:		LnTHP		LnMAG	
Predicted Signs					
ROA	+	2.908*** (20.20)		2.750*** (20.36)	
ERET	+		0.284*** (22.79)		0.053*** (5.36)
LnSIZE	+	0.358*** (38.19)	0.418*** (45.90)	0.330*** (37.49)	0.388*** (45.42)
LEV	+	0.074*** (10.16)	0.020*** (2.86)	0.056*** (8.20)	0.004 (0.56)
M/B	-	-0.042*** (-13.83)	-0.033*** (-10.69)	-0.022*** (-7.97)	-0.013*** (-4.61)
LnMEET	+	0.093*** (4.70)	0.086*** (4.24)	0.092*** (4.94)	0.085*** (4.45)
LnBOARD	+	0.309*** (9.74)	0.323*** (10.00)	0.155*** (5.19)	0.168*** (5.54)
IDR	+	0.378*** (6.85)	0.401*** (7.13)	0.259*** (5.01)	0.281*** (5.32)
SHARE1	-	-0.892*** (-16.59)	-0.842*** (-15.38)	-0.751*** (-14.89)	-0.706*** (-13.73)
CTRL	?	-0.202*** (-4.66)	-0.214*** (-4.84)	-0.168*** (-4.13)	-0.179*** (-4.33)
SHARE1*CTRL	?	0.412*** (3.51)	0.494*** (4.13)	0.416*** (3.77)	0.493*** (4.39)
DUAL	+	0.000 (0.01)	0.003 (0.12)	-0.049** (-2.38)	-0.047** (-2.23)
COMP	-	0.155*** (7.98)	0.167*** (8.45)	0.136*** (7.44)	0.147*** (7.95)
∑ SIC		Included	Included	Included	Included
∑ YEAR		Included	Included	Included	Included
N		10623	10623	10623	10623
F		243	222.12	258.92	237.1
Adj. R <sup>2</sup>		0.429	0.407	0.445	0.423

Table 2.4 Quantile Regression by Using 50 Percentile (Median)

This table reports the quantile regression results on the determinants of Chinese executive compensation for Chinese public firms over the sample period 2001-2010. RSD is raw sum of deviations. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

		Model (1)	Model (2)	Model (3)	Model (4)
Dependent Variables:		LnTHP		LnMAG	
Predicted Signs					
ROA	+	3.156*** (18.50)		3.011*** (20.28)	
ERET	+		0.285*** (22.87)		0.042*** (3.21)
LnSIZE	+	0.378*** (34.00)	0.437*** (35.80)	0.323*** (33.43)	0.377*** (37.38)
LEV	+	0.093*** (10.73)	0.036*** (3.83)	0.062*** (8.28)	0.009 (1.18)
M/B	-	-0.044*** (-12.44)	-0.036*** (-8.71)	-0.022*** (-7.21)	-0.010*** (-2.79)
LnMEET	+	0.099*** (4.21)	0.093*** (3.41)	0.128*** (6.24)	0.104*** (4.65)
LnBOARD	+	0.308*** (8.19)	0.319*** (7.37)	0.148*** (4.53)	0.164*** (4.58)
IDR	+	0.373*** (5.70)	0.364*** (4.84)	0.226*** (3.97)	0.297*** (4.77)
SHARE1	-	-0.905*** (-14.21)	-0.839*** (-11.44)	-0.685*** (-12.33)	-0.660*** (-10.89)
CTRL	?	-0.202*** (-3.94)	-0.227*** (-3.83)	-0.216*** (-4.81)	-0.205*** (-4.19)
SHARE1*CTRL	?	0.340** (2.44)	0.397** (2.47)	0.407*** (3.36)	0.398*** (3.01)
DUAL	+	-0.000 (-0.02)	0.012 (0.40)	-0.043* (-1.90)	-0.029 (-1.16)
COMP	-	0.165*** (7.17)	0.181*** (6.83)	0.136*** (6.80)	0.142*** (6.50)
∑ SIC		Included	Included	Included	Included
∑ YEAR		Included	Included	Included	Included
N		10623	10623	10623	10623
RSD		8231.85	8231.85	7845.66	7845.66
Pseudo R <sup>2</sup>		0.267	0.251	0.279	0.262



Table 2.5 Panel Regression-Fixed Effect GLS Model

This table reports the panel regression-fixed effects GLS results on the determinants of Chinese executive compensation for Chinese public firms over the sample period 2001-2010. The reported standard errors are adjusted for clustering effects. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

		Model (1)	Model (2)	Model (3)	Model (4)
Dependent Variables:		LnTHP		LnMAG	
Predicted Signs					
ROA	+	1.448*** (8.20)		1.750*** (10.32)	
ERET	+		0.236*** (25.99)		0.013* (1.67)
LnSIZE	+	0.460*** (20.69)	0.490*** (22.29)	0.299*** (15.79)	0.325*** (16.81)
LEV	+	0.073*** (5.98)	0.052*** (4.59)	0.083*** (7.47)	0.047*** (4.50)
M/B	-	-0.051*** (-9.88)	-0.049*** (-9.48)	-0.035*** (-7.61)	-0.030*** (-6.36)
LnMEET	+	-0.088*** (-4.12)	-0.024 (-1.15)	0.019 (1.00)	0.025 (1.27)
LnBOARD	+	0.159*** (3.29)	0.162*** (3.44)	0.045 (0.87)	0.057 (1.11)
IDR	+	0.677*** (11.82)	0.764*** (13.68)	0.894*** (15.03)	0.932*** (15.68)
SHARE1	-	-0.415*** (-3.78)	-0.696*** (-6.33)	-1.010*** (-9.08)	-0.919*** (-7.95)
CTRL	?	0.076** (2.09)	0.066* (1.92)	0.113*** (3.35)	0.126*** (3.67)
DUAL	+	0.047 (1.61)	0.042 (1.48)	-0.002 (-0.08)	0.000 (0.02)
COMP	+	0.275*** (12.48)	0.315*** (14.42)	0.390*** (19.65)	0.389*** (19.19)
N		10623	10623	10623	10623
F		171.91	242.97	223.57	213.48
Within R <sup>2</sup>		0.291	0.337	0.418	0.405
Between R <sup>2</sup>		0.387	0.389	0.382	0.351
Overall R <sup>2</sup>		0.306	0.327	0.357	0.336

Table 2.6 Dynamic GMM Model

This table reports the dynamic GMM results on the determinants of Chinese executive compensation for Chinese public firms over the sample period 2001-2010. The Sargan test reports the Chi square under the null that the overidentified restrictions are valid. AB (1) and AB (2) correspond to the Arellano-Bond test for AR(1) and AR(2) serial correlation, under the null of no autocorrelation. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

		Model (1)	Model (2)	Model (3)	Model (4)
Dependent Variables:		LnTHP		LnMAG	
Predicted Signs					
Lag(Dependent)	+	0.450*** (9.83)	0.318*** (6.45)	0.673*** (14.87)	0.754*** (17.05)
ROA	+	1.969** (2.48)		1.744*** (4.47)	
ERET	+		0.496*** (18.66)		0.190*** (15.6)
LnSIZE	+	0.293*** (11.34)	0.492*** (31.85)	0.101*** (7.88)	0.114*** (8.32)
LEV	+	0.082*** (3.91)	0.072*** (9.77)	0.026*** (2.59)	-0.011* (-1.86)
M/B	-	-0.018*** (-2.92)	-0.055*** (-14.47)	-0.008** (-2.57)	-0.001 (-0.44)
LnMEET	+	-1.179*** (-7.08)	-0.854*** (-9.52)	-0.064 (-0.87)	0.086 (1.10)
LnBOARD	+	0.289*** (4.07)	0.209*** (5.34)	0.030 (0.87)	0.061* (1.74)
IDR	+	0.266** (2.21)	0.301*** (4.64)	0.105* (1.90)	0.170*** (3.03)
SHARE1	-	-0.261*** (-2.59)	-0.973*** (-14.33)	-0.225*** (-3.82)	-0.140** (-2.36)
CTRL	?	-0.163*** (-3.00)	0.032 (1.01)	-0.015 (-0.52)	-0.040 (-1.32)
DUAL	+	-4.319*** (-5.92)	-0.331 (-0.73)	-0.215 (-0.55)	-0.444 (-1.05)
COMP	+	0.918*** (7.87)	1.426*** (21.62)	0.223*** (2.80)	0.029 (0.42)
N		8988	8988	8988	8988
AB(1)		-9.86***	-11.14***	-15.72***	-14.96***
AB(2)		-0.45	-3.82***	4.17***	4.78***
Sargan Test		263.52***	547.94***	33.67**	45.34**

Table 2.7 Cross-sectional Regressions by Considering Split-Share Structure Reform

This table reports the cross-sectional regression results on the determinants of Chinese executive compensation by considering split-share structure reform for Chinese public firms over 2001-2010. *REFORM* is a dummy variable which takes a value of 1 if year $\geq$ 2006 and 0 otherwise. The models are controlled for industry effects. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

		Model (1)	Model (2)	Model (3)	Model (4)
Dependent Variables:		LnTHP		LnMAG	
Predicted Signs					
REFORM	+	0.241*** (10.97)	0.252*** (10.69)	0.255*** (13.70)	0.360*** (16.36)
ROA	+	2.867*** (18.71)		2.981*** (21.49)	
ERET	+		0.332*** (25.22)		0.127*** (10.30)
LnSIZE	+	0.401*** (42.70)	0.422*** (47.22)	0.300*** (35.23)	0.343*** (41.15)
LEV	+	0.086*** (11.06)	0.038*** (5.30)	0.078*** (11.17)	0.025*** (3.80)
M/B	-	-0.043*** (-14.76)	-0.044*** (-15.32)	-0.039*** (-14.79)	-0.036*** (-13.16)
LnMEET	+	0.041** (1.97)	0.064*** (3.10)	0.074*** (3.94)	0.077*** (4.00)
LnBOARD	+	0.280*** (8.30)	0.324*** (9.71)	0.197*** (6.45)	0.228*** (7.34)
IDR	+	0.716*** (14.08)	0.747*** (14.89)	0.825*** (17.91)	0.873*** (18.66)
SHARE1	-	-0.936*** (-16.25)	-0.848*** (-14.94)	-0.755*** (-14.48)	-0.685*** (-12.93)
CTRL	?	-0.190*** (-4.07)	-0.205*** (-4.45)	-0.157*** (-3.72)	-0.170*** (-3.96)
SHARE1*CTRL	?	0.518*** (4.10)	0.544*** (4.37)	0.488*** (4.27)	0.553*** (4.76)
DUAL	+	0.016 (0.66)	0.014 (0.59)	-0.033 (-1.57)	-0.032 (-1.49)
COMP	-	0.301*** (15.32)	0.266*** (13.68)	0.264*** (14.88)	0.258*** (14.25)
N		10623	10623	10623	10623
F		221.41	238.25	288.72	265.81
Adj. R <sup>2</sup>		0.342	0.358	0.404	0.384

## CHAPTER III

### CEO COMPENSATION, EXPROPRIATION OF MINORITY SHAREHOLDER AND BALANCE OF POWER AMONG LARGE SHAREHOLDERS

#### 3.1 Introduction

The exploitation of minority shareholders by controlling shareholders has attracted a great deal of attention by both academics and investors. Shleifer and Vishny (1986) claim that when firms are controlled by a large stockholder(s), expropriation is more likely to occur because the principal is motivated to divert benefits from the publicly listed companies. Johnson *et al.* (2000) employ the term “tunneling” to describe such asset appropriation behavior. Tunneling takes the form of legally or illegally transferring assets and profits to the controlling shareholders by exploiting the minority shareholders, which in turn hurts minority shareholders’ interests, and also harms the development of financial markets (Johnson *et al.*, 2000; Bertrand *et al.*, 2002). This chapter extends the existing literature by examining the probability of expropriation in terms of chief executive officer (CEO) compensation from the entrenchment framework which states that powerful CEOs can exercise enormous sway over boards, rendering the boards ineffective in setting appropriate CEO contracts (Bebchuk and Fried, 2004). From this rent-extraction perspective, in a country where corporate governance and legislative institution are weak, conflict of interests between controlling shareholders and minority shareholders could hinder the adoption of incentive-payment schemes, thereby result in a relatively higher level of

executive compensation through expropriation of the minority shareholders by controlling shareholder.

The study on CEO compensation and minority shareholders' protection is compelling in the wake of recent financial crisis. The studies conducted by Aghion *et al.* (2000) and Krugman (1999) show that the financial distress of public firms facilitates the causes of financial crisis. More recently, Vallascas and Hagendorff (2010) examine the relationship between executive compensation and bank default risk in the U.S. and Europe, and find that banks with CEO stock options display significantly higher default risk and pay incentives are related to higher bank risk. Morse *et al.* (2011) argue that powerful CEOs induce their boards to shift the weight on performance measures towards the better performing measures, thereby rigging the incentive part of their pay. Finally, Bebchuk and Fried (2004) claim that CEO compensation in the U.S. is an inefficient "pay without performance" that calls for systemic reform. In addition, many facts support that emerging markets suffer from tunneling more severely than developed markets, particularly in a weak regulatory institution. The stylized facts are consistent with the observations of Shleifer and Vishny (1997) that the private benefits acquired from tunneling are relatively large in developing countries that do not have effective legal enforcement and corporate governance to protect minority shareholders' interests.

This study explores the probability of expropriation of minority shareholders by controlling shareholders' tunneling in terms of executive compensation in the Chinese context. China has been well documented as having a weak corporate governance institution and highly concentrated state ownership. Due to these historical reasons, most Chinese public firms evolved from state owned enterprises (SOEs). The SOEs' shareholder has a "One Stock Dominance"

position;<sup>8</sup> and as a result, controlling shareholders have an incentive to pursue their private benefits at the expense of other shareholders (Jensen and Meckling, 1976). Further, Morck *et al.* (1988) and Shleifer and Vishny (1997) claim that as the control-ownership disparity increases, controlling shareholders appropriate more firm resources. Moreover, the ownership structure in China is highly concentrated and the majority of state-owned shares cannot be traded on the secondary market. For companies with concentrated ownership, controlling shareholders could obtain private benefits from their controlling positions through various forms of self-dealing transactions.<sup>9</sup> Most importantly, conflicts of interest among large shareholders can lower firm performance and facilitate CEO entrenchment. For example, La Porta *et al.* (2002) show that firms with high ownership concentration generally exhibit high Tobin's Q. Lemmon and Lins (2003) show that firms with greater separation of ownership cash flow rights and control right have severer firm devaluation, especially during a financial crisis. Mitton (2002) also illustrates that firms with high ownership concentration and better financial disclosure quality typically exhibit superior stock performance. In sum, the expropriation of minority shareholders exists among Chinese public firms due to the high ownership concentration and weak legal enforcement.

This study contributes to the literature by focusing on the effects of corporate governance restructuring on executive compensation and controlling shareholders' tunneling in the Chinese context. Previous literature illustrates that expropriation is usually achieved through collusion between controlling shareholders and executives (Cheung *et al.*, 2006; Jiang *et al.*, 2010). Since tunneling reduces firm performance, a strong association between executive compensation and

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<sup>8</sup> "One stock dominance" means that there is a single shareholder in the publicly traded firms, which is the state, with over 50% of the ownership and being predominant over other minority shareholders.

<sup>9</sup> The self-dealing transactions are documented as selling goods and services at low prices, conducting related party transactions, and transferring assets from listed companies to member firms under controlling shareholders' control.

firm performance would strengthen executives' incentives to increase firm performance and reduce their willingness to collude with controlling shareholders. Although the Chinese government has undertaken a series of regulations to protect minority shareholders from expropriation by controlling shareholders since 1997, the regulation alone is not enough to prevent controlling shareholders from tunneling, especially when minority shareholders have limited litigation channels and regulators have limited jurisdiction over controlling shareholders (Jiang *et al.*, 2010).

In 2005, the China Securities Regulatory Commission (CSRC) launched a split-share structure reform aimed at removal of non-tradable shares.<sup>10</sup> The reform requires publicly listed companies to convert non-tradable shares to tradable shares by compensating existing shareholders through various ways such as bonus shares, cash, and stock options. This reform was accompanied by a series of changes in the Corporate Law and Exchange Law, which also paved the way for granting stock options to executives. This mandatory institutional change has resulted in significant changes in the ownership concentration and corporate control, as well as executive compensation and minority shareholders' protection. In this study, I use a large dataset of Chinese public firms over 2001-2010 and comprehensively examine the great impacts of institutional changes on the relationship between Chinese executive compensation and expropriation of minority shareholders.

I also investigate whether these effects are stronger with the involvement of state ownership in Chinese public firms. Prior literature documents that controlling shareholders can maintain their control right with the help of indirect pyramidal ownership in business activities,

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<sup>10</sup> In December 2005, the CSRC issued a trial version of "Regulation for the Stock Options Grants of Public Firms" effective in January 2006. This regulation allows public firms that have successfully completed structural reforms to offer stock options to their higher management, board, and supervisory board members.

through which they can divert resources from public entities (La Porta *et al.*, 1999; Claessens *et al.*, 2000). It is worth noting that many Chinese firms have some degree of state ownership or collective ownership, which provides controlling shareholders in SOEs have greater incentives and more tools to divert firm resources than their counterpart in private firms at the cost of minority shareholders. Moreover, Lamont (1997), Shin and Stulz (1998), and Scharfstein and Stein (2000) also study the international capital market and argue that multidivisional firms overinvest capital in a weak institution and underinvest in a stronger one. This study provides further evidence on whether the involvement of state ownership in public firms results in a higher level of executive compensation and more tunneling activities relative to private firms in the Chinese financial market.

This study contributes to the literature in several ways. First, I investigate the probability of expropriation of minority shareholders in terms of CEO compensation under imperfect corporate governance institution. The study is compelling because the Chinese financial market has been well documented as having imperfect investors' protection and CEO entrenchment. Second, this study provides further evidence on whether the involvement of state ownership in public firms results in a higher level of executive compensation and more tunneling relative to private firms in China. The Chinese market is unique because there are a large number of SOEs and most firms have highly concentrated ownership structures. Previous literature has predominately examined the behaviors of controlling shareholders for private firms; however the question of whether the tunneling effects are stronger with the involvement of state ownership is unexplored. Third, I use a relative measurement of asset appropriation by dividing the difference between accounts receivable and accounts payable due to related party transaction by total assets. This relative measure has an advantage over previous methods because the data for related party



transactions are available in the annual reports, while previous studies on the proxies for asset appropriation are not straightforward because the measurements cannot be observed from public sources, such as annual reports. This study also adds to the literature by using a direct method to gauge controlling shareholders' tunneling and expropriation of minority shareholders. Finally, I examine the probability of expropriation of minority shareholders in terms of CEO compensation by highlighting the impact of institutional changes on controlling shareholders' tunneling behaviors and CEO compensation; specifically, I examine the balance of power among large shareholders and board characteristics in determining Chinese CEO compensation and controlling shareholder's tunneling.

The results reveal that the controlling shareholder's tunneling has a strong deterioration effect on firm performance, and this effect is much stronger when using an accounting measure relative to a stock performance measure. By examining the effects of ownership structure on the controlling shareholder's tunneling, I find that firms with more tunneling activities typically have larger controlling ownership, more involvement of government control and less balance of power among large shareholders. The results also reveal that controlling shareholder's tunneling activities are often associated with significantly weak board characteristics, suggesting that the controlling shareholders who tunnel assets out of publicly listed firms may be a result of poor oversight by board members. I further use a two-stage least square (2SLS) to address the endogeneity problems raised from the tunneling effects on executive compensation. The results of 2SLS regression indicate that increases in CEO compensation are associated with controlling shareholders' tunneling. The positive relationship between controlling shareholders' tunneling and executive compensation implies that the controlling shareholder might divert personal benefits from public firms at the expense of minority shareholders in terms of executive

compensation. Overall, the results provide evidence in support of the CEO entrenchment theory, suggesting that a strong corporate governance system and firm characteristics may lower the likelihood of tunneling while improving the level of investor protection.

The rest of the chapter is organized as follows. Section 2 discusses prior literature. Section 3 derives a theoretical model and develops the hypotheses. Section 4 describes the institutional background of the Chinese financial market. Section 5 presents the data and section 6 describes the methodology. Section 7 reports the empirical results. Section 8 concludes.

### **3.2 Literature Review**

The relationship between executive compensation and firm performance has been widely investigated within the agency-based framework.<sup>11</sup> Agency theory suggests that the CEO compensation contract is determined by arms-length bargaining that leads to efficient outcomes (Holmstrom and Kaplan, 2003; Edmans and Gabaix, 2009). Berle and Means (1932) show that as firm size increases, ownership becomes diffused, thus leading to conflicts of interest between owners and managers. Jensen and Meckling (1976) propose that there should be an inverse monotonic relation between the owner manager's control and agency costs because, as ownership increases, the owner manager has more incentives to maximize the value of the firm. However, in most circumstances this is not the case because Berle and Means (1932) and Jensen and Meckling (1976) assume that the owner-manager is a single owner who has reduced his or her equity position in the firm, while with the modern public corporation and management, the conflicts between principal and agent arise due to the separation of the corporation's ownership and control of the corporation. They emphasize that when control is distinct from ownership,

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<sup>11</sup> See Kaplan (1997, 1999) and Core *et al.* (2003) for a summary of literature.

those in control may deploy assets in ways that benefit them rather than owners. Jensen and Meckling (1976) refer to this failure to maximize the welfare of the principal as residual loss, and feel it is likely to be the most important cost due to the principal-agent conflict.

Bertrand and Mullainathan (2001) argue that agency-based bargaining takes place in firms with strong governance, while entrenchment-based skimming is more likely to take place in firms with weak governance. Shleifer and Vishny (1997) show that the private benefits acquired from tunneling are relatively large in developing countries that do not have effective legal enforcement and corporate governance to protect minority shareholders' interests. Extant literature overwhelmingly focuses on Anglo-Saxon corporate governance which features open, external information disclosure and stringent accounting rules, single-tier boards, hostile takeovers, laws protecting minority shareholders, and a high proportion of a firm's stock in "free float". However, academics and practitioners cast doubt on whether the commonly used market-based corporate governance mechanisms in developed economies may work in emerging economies (Ball *et al.*, 2000; Bushman and Piotroski, 2006). The stylized fact is that many emerging economies are associated with weak governance institutions. If corporate governance is weak, then in stances where controlling shareholders' control rights exceed their ownership rights, controlling shareholders have an incentive to expropriate firm resources. Furthermore, expropriation is more likely to occur when the disparity between control and ownership is large (Morck *et al.*, 1988; Shleifer and Vishny, 1997). Hence, in firms with high disparities between ownership and control rights, conflicts of interest between managers and shareholders can affect firm performance.

The weak corporate governance in emerging markets has triggered a great deal of attention in the sense of executive compensation and causes of financial crisis. Johnson *et al.*

(2000) show that countries with weak legal protections suffer severe stock market declines during the crisis. Mitton (2002) shows that firm performances is affected by corporate governance measures, such as disclosure quality and concentrated ownership, especially during a crisis. Lemmon and Lins (2002) show that firms typically exhibit lower performance when their controlling managers had more control rights than ownership rights at the time of a financial crisis. Many emerging markets suffered significant decline during the recent financial crises due to their weak legal environments and poor governance systems. On one hand, it is imperative to identify the internal and external governance mechanisms that define an optimal contract. On the other hand, without specifying the role of corporate governance and legislative institution, testing the pay-performance setting could result in misunderstanding the mechanism of CEO compensation in a particular context. Most importantly, tunneling is of particular significance in companies with concentrated ownership (La Porta *et al.*, 1999; Claessens *et al.*, 2000). In many firms in East Asia and China, concentrated ownership structures are so common that controlling shareholders in these firms have more opportunities to expropriate minority shareholders.

Because asset appropriation cannot be directly observed, it is compelling to quantitatively identify the source of tunneling. Typically, there are two relevant streams of literature regarding the measurements of expropriation of minority shareholders. The first stream of research has attempted to measure expropriation indirectly, using different proxies for the degree of expropriation. For example, some studies use the legal system as a proxy for the likelihood of expropriation or the level of investor protection (La Porta *et al.*, 1998; La Porta *et al.*, 2000; Johnson *et al.*, 2000; Djankov *et al.*, 2008). The empirical results show that the legal system has significant effects on dividend policy (La Porta *et al.*, 2000), firm valuation (La Porta *et al.*, 2002), and stock liquidity (Brockman and Chung, 2003). Other studies use the deviation of cash

flow from control rights as a proxy for the likelihood of expropriation. The studies along this dimension show that the deviation of cash flow from control rights affect dividend policy (Faccio *et al.*, 2001), firm valuation (Lemmon and Lins, 2003), firm profitability (Joh, 2003), and even the propagation of earnings shocks within the firm (Bertrand *et al.*, 2002). However, these studies do not examine whether the value of minority shareholdings declines following specific corporate actions.

Existing literature argues that controlling shareholders tunnel assets out of firms that have performed well, but prop up underperforming firms. However, empirical evidence on propping up is very scant. Friedman *et al.* (2003) argue that propping up is the flip side of tunneling but do not provide direct evidence. They argue that controlling shareholders can choose to tunnel or to prop up their firms according to firm performance. Bae *et al.* (2002) find that Korean *chaebols* typically experience value deterioration when they are required to bail out under-performing intra-group firms through rescue mergers. Moreover, Jian and Wong (2004) show that Chinese firms that are affiliated with business groups are more likely to employ related party transactions to manipulate their earnings through internal transactions with their parents and similar evidences of propping up are seen in the Hong Kong market (Cheung *et al.*, 2006).

Another stream of literature examines the actions of controlling shareholders by assuming that related-party transactions between publicly listed firms and their controlling shareholders may have a direct impact on firms' behaviors. Previous literature explicitly provides evidence that the value of minority shareholdings has declined as a result of specific related party transactions.<sup>12</sup> Cheung *et al.* (2006) examine a large set of related party transactions

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<sup>12</sup> Previous literature illustrates that there are three types of motivations behind related party transactions--tunneling, propping, and earnings management.

among controlling shareholders for publicly listed firms in Hong Kong and they find that, on average, firms experience significant negative excess returns both at the initial announcement and in the subsequent 12-month period after the announcement of related party transactions. Similarly, Baek *et al.* (2006) examine whether equity-linked private securities offerings are used as a mechanism for tunneling among firms that belong to a Korean *chaebols*, and they find that *chaebol* issuers involved in intra-group deals set the offering prices to benefit their controlling shareholders. La Porta *et al.* (2003) examine the related lending activities between Mexican banks and firms controlled by the bank's owners. They show that related loans carry lower interest rates compared to arm's length loans and these loans are more likely to default and have lower recovery rates subsequent to default. In sum, the market responds to announcements of related party transactions as a *priori* likelihood of expropriation of minority shareholders.

This study adds to the literature by using a direct method to gauge controlling shareholders' tunneling and expropriation of minority shareholders. Following Johnson *et al.* (2000) and Gao and Kling (2008), I use a relative measure of asset appropriation by dividing the difference between accounts receivable and accounts payable by total assets. The accounts payable and account receivable refer to related party transactions, which are disclosed in annual reports. This relative measure is superior to previous method because the data for related party transactions are available in the annual reports, while previous studies on the proxies for asset appropriation are not straightforward because the measurements cannot be observed from public sources, such as firms' annual reports. By observing related party transactions, I attempt to identify the potential tunneling activities by controlling shareholders. Djankov *et al.* (2008) point out that related party transactions may provide direct opportunities for related parties to extract cash from listed companies through tunneling activities. Friedman *et al.* (2003) note that related

party transactions can also be used to prop up underperforming firms. Therefore, this method is straightforward and the data is available from public sources, which eliminates the shortcomings of other methods by using the amount of cash transferred from listed firms to their controlling shareholders (Jiang *et al.*, 2010; Jian and Wong, 2010).

### 3.3 A Theoretical Framework and Hypotheses Development

I begin with presenting a simple model of a firm fully controlled by a single shareholder, also called the entrepreneur (La Porta *et al.*, 2002) with control rights in the hands of a founding family. La Porta *et al.* (2002) show that, in most countries, ownership is private and control is heavily concentrated and usually in the hands of a founding family. The model assumes that the controlling shareholder has share or cash flow ownership  $\alpha$  in the firm,<sup>13</sup> where  $\alpha$  is exogenously determined by the history and the life-cycle of the firm and the entrepreneur retains the holding equity throughout the investment horizon.

The firm has the amount of cash  $I$ , which it invests in a project with the gross rate of return  $R$ . In this case, the scale of investment does not matter. The firm has no costs and thus the total profits are  $RI$ . Not all of the profits are distributed to shareholders on a *pro rata* basis. As a benefit of controlling the firm, the entrepreneur can divert a share  $s$  of the profits from the firm to himself, before he distributes the balance as dividends. This diversion or tunneling can take the form of salary or bonus, transfer pricing, subsidized personal loans, non-arms-length asset transactions, and, in some cases, outright theft.<sup>14</sup> Previous studies generally assume that controlling shareholders typically serve as managers (La Porta *et al.*, 1999), although there are

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<sup>13</sup> Entrepreneurs typically control a higher fraction of votes than that of cash flow rights by owning shares with superior voting rights, constructing ownership pyramids, or controlling the board (La Porta *et al.*, 1999).

<sup>14</sup> In most countries, much of such diversion, short of theft, is legal, but requires costly transactions, such as setting up intermediary companies, taking legal risks, and so on (Burkart *et al.*, 1998; Johnson *et al.*, 2000).

also instances of entrepreneurs or their families hiring professional managers. In sum, the literature typically supports that CEO tunneling is more likely to occur if the entrepreneur also serves as the manager.<sup>15</sup>

This study posits that the nature of large shareholders is an important factor behind their supervision or collusion choices and it affects management compensation. The tendency to expropriate by the largest shareholder is an outcome of the balance of power within large shareholders. Liu *et al.* (2010) examine the related party transactions among Chinese listed companies between 2000 and 2004 and find that both ownership concentration and balance of power among shareholders have a positive impact on corporate governance. Because the majority of the listed firms in China are SOEs and the top managers are generally appointed by the government or the controlling shareholders, such a specification better fits the Chinese context.

Suppose a listed company has several large shareholders with the controlling shareholder having a proportion of shares  $k_1$  and other large shareholders having the proportion of shares  $k_2$ , and the balance of shares are held by numerous minority shareholders.<sup>16</sup> I also assume that the optimal level of expropriation is  $s$  ( $0 < s < 1$ ) and other large shareholders choose to collude with the controlling shareholder and bargain over the distribution of their private benefits.

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<sup>15</sup> Chahine and Goergen (2011) use three different indicator values for CEO entrenchment. The first one indicates whether the CEO is also the firm's founder. The second one indicates whether the CEO also assumes the role of company chairman. The third one indicates whether the CEO is also the founder as well as the chairman. There is consistent evidence from all three measures that CEO entrenchment creates a significantly positive link between IPO underpricing and the *ex ante* gains from CEO options.

<sup>16</sup> The relative size of shareholding represented by  $k_1, k_2, \dots, k_x$  is consistent with conventional definitions of blockholder, i.e. these shareholders hold more than 5% total shares of outstanding.



After the expropriation, the company suffers a loss of  $sRI$ , in which  $I$  and  $R$  represent the initial investment and the rate of return on investment. Accordingly, other large shareholders suffer losses  $k_2sRI$ . To achieve the collusion, the controller has to pay benefits  $P$  to other large shareholders and  $P$  has to be no less than  $k_2sRI$ , that is,  $P \geq k_2sRI$ . Let  $b$  represent the proportion of the private benefits of the controlling shareholder distributed to other large shareholders through bargaining, then we can have  $P = k_2sRI + bsRI$ .

Now let  $C(g, s)$  be the cost function faced by the controlling shareholder and  $C_s > 0$ ,  $C_g > 0$ ,  $C_{ss} > 0$ , and  $C_{gs} > 0$ , where  $g$  denotes the corporate governance system and the quality of shareholder protection. Under these assumptions, the optimal level of wealth through expropriation for the controlling shareholder is given as:

$$MaxW = k_1(1-s)RI + sRI - k_2sRI - bsRI - C(g, s)RI \quad (1)$$

where  $k_1(1-s)RI$  is the controlling shareholder's proportion of cash flows (or dividends) after expropriation;  $sRI$  represents his private benefits from expropriation;  $k_2sRI$  and  $bsRI$  are the benefits transferred to other large shareholders and  $C(g, s)RI$  is the possible punishment costs. Since the solution for optimal level  $s$  is independent of  $RI$ , we can simplify as:

$$MaxW = k_1(1-s) + s - k_2s - bs - C(g, s) \quad (2)$$

Taking the first derivative of Equation (2) with respect to  $s$  and setting it equal to zero, I have:

$$\frac{dW}{ds} = -k_1 + 1 - k_2 - b - C_s(g, s) = 0 \quad (3)$$

Let  $k = k_1 + k_2$ ,

$$C_s(g, s^*) = 1 - k - b \quad (4)$$

where  $0 < b < 1 - k$ , it shows that  $P$  ( $P = k_2sRI + bsRI$ ) has to be less than the net benefits  $(1 - k_1)sRI$  obtained from expropriation. If  $b > 1 - k$ , the controlling shareholder would fail to collude with other large shareholders. In such a case, the optimal degree of expropriation is zero. Hence, when other large shareholders have greater bargaining power, it would be more difficult for multiple large shareholders to collude, thus leading to a lower optimal degree of expropriation. This is consistent with Gomes and Novaes' (2005) finding that the bargaining of large shareholders leads to efficiency losses.

Without considering a country's specific legal system and assuming that  $C(g, s) = cs^2$ , where  $c$  ( $c > 0$ ) is a constant representing the effect of the legal system of a particular country on the controlling shareholder's expropriation behavior. Substituting  $C(g, s) = cs^2$  into Equation (4), the optimal level of expropriation  $s^*$  for the controlling shareholder can be written as  $s^* = (1 - k - b)/2c$ . These benefits consist of two parts:  $(1 - k)/2c$  is the distributable private benefit for large shareholders at the expense of minority shareholders, and  $b/2c$  is the private benefits that other large shareholders obtain through bargaining with the controlling shareholder.

Further, assuming that  $b/c = p[(1 - k)/c]$ , where  $p$  denotes the percentage of private benefits obtained by other large shareholders, where  $0 < p < 1$ . Equation (4) can then be rewritten as

$$s^* = \frac{1 - k}{2c}(1 - p) \quad (c > 0, \quad 0 < p < 1) \quad (5)$$

Taking the first derivative of Equation (5) with respect to  $k$ , we have:

$$\frac{ds^*}{dk} = -\frac{1}{2c}(1 - p) < 0 \quad (6)$$

Equation (6) shows that when other large shareholders choose to collude with the controlling shareholder, the proportion of shares held by other large shareholders ( $k_2$ ) and the proportion of shares held by controlling shareholder ( $k_1$ ) are mutually enhancing, suggesting that internalizing the private benefits of control lowers the optimal degree of tunneling  $s^*$ . This is consistent with the alignment effect hypothesis proposed by Bennesen and Wolfenzon (2000).

Taking into account the effects of corporate governance and assuming that the cost of expropriation function is  $C(g, s)$ , where  $g$  denotes the corporate governance system and the quality of shareholder protection, we can now further examine the first-order condition of Equation (4) to derive several testable implications in the following steps. Differentiating the first-order condition of Equation (4) with respect to  $g$ , we have:

$$C_{gs}(g, s) + C_{ss}(g, s) \frac{ds^*}{dg} = 0 \quad (7)$$

Rearranging, and noting the assumptions on  $C(g, s)$  that  $C_{ss} > 0$  and  $C_{gs} > 0$ , we have

$$\frac{ds^*}{dg} = -\frac{C_{gs}(g, s)}{C_{ss}(g, s)} < 0 \quad (8)$$

Next, differentiating the first-order condition with respect to  $a$ , we have:

$$C_{ss}(g, s^*) \frac{ds^*}{d\alpha} = -1 \quad (9)$$

Under the assumptions on the cost of expropriation function  $C(g, s)$  that  $C_{ss} > 0$ , it implies:

$$\frac{ds^*}{d\alpha} = -\frac{1}{C_{ss}(g, s^*)} < 0 \quad (10)$$

This is consistent with the literature that the weaker the degree of corporate governance, the higher the degree of entrenchment by the largest shareholders. Under the condition of the presence of a large shareholder along with state-control ownership in a firm, there are several important testable implications, thus, I propose the following hypotheses:

H1: In a system with weak corporate governance, the controlling shareholder is more likely to expropriate minority shareholders.

H2: Holding other factors constant, the proportion of shares held by the controlling shareholder is associated with the level of tunneling.

H3: The level of tunneling by controlling shareholders is higher when the firm is controlled by the state.

H4: Controlling shareholder's tunneling would result in a higher level of executive compensation when corporate governance is weak.

H5: In a firm with multiple-state shareholders, entrenchment is more likely to occur through collusion among large shareholders, and thus results in a higher level of executive compensation.

H6: The greater the balance power of other large shareholders relative to the controlling shareholder that exists in a public firm; the lower the level or probability of controlling shareholders' tunneling.

Table 1 reports the ownership distribution of the controlling shareholder and the 2<sup>nd</sup> largest shareholders for Chinese public firms over 2001-2010. The table shows that the average proportion of shares held by the largest shareholder was over 40% before 2005; after the split-

share structure reform, the proportion declined but still remained at a high level of about 35%. Despite significant decreases observed in the average proportion of shares held by the largest shareholder during 2006-2010, the mean and median percentage of shares held by the 2<sup>nd</sup> largest shareholder showed little variations and remained at a relatively low level of less than 10%. The results confirm the phenomenon of “One Stock Dominance” in the Chinese financial market. Table 1 also shows that although there is a big gap in the ownership stake between the largest and 2<sup>nd</sup> largest shareholders, the gap was narrowing over time. The implication of the statistics is that the weak corporate governance system in the Chinese capital market fosters a group of powerful controlling shareholders, and thus facilitates the controlling shareholders’ tunneling activities and expropriation of minority shareholders due to the relatively weak balance of power among other large shareholders.

[Insert Table 1 about here]

### **3.4 The Institutional Background of Chinese Financial Market**

Since 1978 the Chinese government has implemented a series of reforms in SOEs aimed at improving incentives, decentralizing decision-making, and leading to productivity increases. However, there were few outright privatizations because the state retained shareholdings in most companies (Megginson and Netter, 2001). Due to historical reasons, a large amount of non-tradable shares exist in Chinese the stock market. Typically, there are five types of Chinese shares: (1) government shares, which are held by the State Assets Management Bureau (SAMB); (2) legal entity shares (or C shares), which are held by other state-owned enterprises; (3) employee shares, which are held by managers and employees; (4) ordinary domestic individual shares (or A-shares), which can be purchased only by Chinese citizens on the Shanghai (SHSE)

or the Shenzhen (SZSE) stock exchanges; and (5) foreign shares, which can be purchased only by foreign investors in Mainland China (B-share), in Hong Kong (H-share), or in the U.S. (N-share). The first three types of shares are not tradable on the official exchanges, although employee shares are allowed to be listed three years after the IPO. These non-tradable shares cause severe agency problems. Starting from 2005, the CSRC launched a split-share structure reform aiming at eliminating all non-tradable shares and transferring non-tradable shares into tradable shares. Under this framework, non-tradable shares eventually become limited-tradable shares and in a longer horizon, the limited-tradable shares will become regular tradable shares until they can trade without limit. This mandatory institutional change has resulted in significant changes in ownership concentration, firm liquidity, and corporate governance.

There are two Chinese stock exchanges: the Shanghai Securities Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE). The former was established in 1990 and the latter in 1991. By law, all shares in China have the same voting and cash-flow rights. From May 2004, SZSE formally established a Small and Medium Enterprise board (SME) for growing firms. Meanwhile, the Chinese stock market was made partially accessible to foreign investors. According to the residency of their owner, the Chinese listed shares can be classified as domestic (A-shares) or foreign (B-, H-, and N-shares) shares. A-shares are only available to Chinese domestic investors (denominated in the Chinese *yuan*). Originally, B-shares were only available for purchase by non-residents but were later made available to domestic individuals in 2001. H-shares are the Chinese stocks that cross-listed on Hong Kong Stock Exchange (HKSE). HKSE provides a main listing board for major companies with a record of consistent operation and profit as well as a Growth Enterprise Market (GEM) that was established on November 25, 1999. Since 1993, there has been a growing body of N-shares that list in the forms of stocks or

American Depository Receipts (ADRs) on the U.S. exchanges, including AMEX, NYSE and NASDAQ.

The legal system is an effective external mechanism to protect minority shareholders. La Porta *et al.* (1998) reveal that in common law countries, the level of corporate governance is high, and interests of minority shareholders are well protected. In contrast, in civil law countries, the protection of minority shareholders is usually weak. The legal system in China is similar to civil laws that give investors weaker legal rights than common laws do. For Chinese firms, the stock market is segmented into A-shares, B-shares, and foreign shares. The A-shares and B-shares are subject to the listing requirements by the CSRC, while H-shares are subject to stricter listing requirements on SEHK, and N-shares are subject to the disclosure requirements of the Securities and Exchange Commission's (SEC) Exchange Act.

The regulatory framework of corporate governance has experienced an actively improving process in the Chinese financial market during recent decades. The CSRC was established in 1992 under the State Council immediately after the two Chinese stock markets were set up. The responsibility of the CSRC is to supervise and regulate issuing and trading activities. In 1993, the Company Law was promulgated to regulate the organization and behavior of a company, and specifies the rights and obligations of the shareholders, the board of directors, and the supervisory committee. In 1998, the Securities Law was promulgated, aiming to standardize the issuing and trading of securities, as well as to protect the lawful rights and interests of investors. In addition, the Ministry of Finance revised the Accounting Law in 1991, which replaced the previous version launched in 1985. There is no doubt that the more stringent listing requirements and accounting standards of the domestic market help to improve the

corporate governance and operating performance of Chinese firms. However, rule enforcement is very weak due to the CSRC's lacking the necessary investigative and prosecuting power or resources. Moreover, due to the high cost and complexity involved in civil claims, individual investors usually find it difficult to sue in courts for suspected infringements. Therefore, China, as a major emerging economy, has a very unique corporate governance system relative to their counterparts in developed economies. Although China is emerging as a significant economic power, little evidence is available on the role of corporate governance in minority shareholders' protection in a state-controlled economy.

The distinctions of governance institution in China are reflected in the following ways. First, Chinese firms typically have a two-tier board structure where a listed firm is governed by both a board of directors and a supervisory committee. In contrast to the one-tier board structure in Anglo-Saxon countries, there is a natural distance between executive board members and non-executive board members. Second, the majority of Chinese listed companies are state-owned enterprises and their major corporate decisions are frequently exercised by the government. In addition, Chinese executives and directors are often bureaucrats appointed or nominated by the government. Third, high ownership concentration is prevalent among Chinese public firms. On average, the equity ownership held by the largest shareholder of a firm is more than 40% (Allen *et al.*, 2005). The concentrated ownership structure implies that the classical principal-agent conflict is more likely to be of less concern because controlling shareholders have enough incentives to monitor managers. Thus, it is important to examine the role of ownership identity and board characteristics in determining executive compensation and minority shareholders' protection under imperfect corporate governance.



The CSRC has required all publicly listed firms to disclose related party transactions since 1997. The disclosure was originally governed by Content and Format Standards of Information Disclosure for Securities Issuing Companies No 7--Announcement on Related Party Transactions. A related party transaction refers to a transfer of resources or liabilities between a listed firm (or its subsidiaries) and a related party. A related party can be any legal entity or individual that directly or indirectly controls the listed firm. The law states that transactions that deal with the listed firm's subsidiaries or large creditors are also deemed as related party transaction. In addition, the law requires that all related party transactions must be reported to the exchange within two working days following the signing of the contract if the total value of the transaction is greater than Chinese *yuan* 1 million (US\$ 151,520) or 0.5% of net assets, whichever is higher; all related party transactions over Chinese *yuan* 10 million (US\$ 1.51 million) or 5% of net assets, whichever is higher, must be approved by shareholders in general meetings. The regulation also states that any individuals who are related with interests in the transaction cannot vote and all the related party transactions must be disclosed in the public firm's annual reports.

### **3.5 Data**

This study uses a novel sample of data for Chinese publicly listed firms over 2001-2010. The data is obtained from various issues of annual reports and double-checked for consistency with the China Center for Economics Research (CCER) database and the China Stock Market and Accounting Research (CSMAR) databases. Both datasets are widely employed in previous literature on the Chinese financial market. The sample consists of all listed A-share firms on the

Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) during the period from January 2001 to December 2010. The sample period begins in 2001 for several reasons: (1) The information about the ultimate controlling shareholder is only available from 2001 in China; (2) The implementation of the Accounting Regulations for Business and Enterprise (ARBE) starts from 2001, which has a significant impact on firms' accounting data accuracy and disclosure transparency; (3) The Chinese IPOs' issuance system has changed since 2001 with the new IPO approval system having significant influence on the ownership structure of listed shares; (4) Chinese executive compensation disclosure has been mandated by the CSRC since 2001. I exclude all the financial firms by using the first two-digit of their Global Industry Classification Standard (GICS) code being 40 due to their highly-regulated nature. I also eliminate companies concurrently issuing B-shares or H-shares and firms listed as Small and Middle Enterprises (SME) because they are subject to both domestic and overseas regulations relative to those companies that issue only A-shares, and also because cross-listings facilitate the calculation of the value of the sample companies. In addition, I drop the observations with non-active status. The non-active firms include those firms marked as Special Treatment (ST), Pause Transaction (PT) or delisted. Finally, each selected variable is winsorized at 1% to control for the effect of outliers. The final sample consists of a total of 10700 observations.

The CSRC requires all publicly-listed companies to disclose capital transfers to their related parties since 1997. There are several ways to directly estimate the expropriation of minority shareholders. For example, Jiang *et al.* (2010) use the amount of cash transferred from listed companies to their controlling shareholders at the end of year to measure controlling shareholder's tunneling. Hence, they measure the controlling shareholders' tunneling as the ratio of related party cash transfers over total assets. To analyze the extent of tunneling, other

measures are also utilized in recent studies. For example, Berkman *et al.* (2009) use loan guarantees issued by Chinese firms to their controlling shareholders as an indirect way of tunneling, and they show that these transactions are less likely to occur in SOEs. However, previous studies on the direct measure of asset appropriation are not straightforward because these direct measures cannot be observed from public sources, such as firms' annual reports.

In this study, I focus on the accounts payable and receivable due to transactions between the respective company and another company that is a principal shareholder of the former. According to Johnson *et al.* (2000), when listed companies have transactions with one of their block-holding shareholders, these transactions are regarded as related party transactions and have to be disclosed in the footnote of year-end balances of "Other Receivables" item in the annual reports. Related party transaction is an internal corporate lending activity which can be used as a proxy of tunneling by the controlling shareholders from the listed companies.<sup>17</sup> In this study, I use related party transactions to quantify the extent of tunneling. The data for these transactions are available in firms' annual reports. To obtain a relative measure that accounts for firm size, I divide the difference between accounts receivable and accounts payable by total assets. This serves as a proxy for asset appropriation, as related party transaction with a high imbalance between accounts payable and receivable could indicate that the dependent company loses in these transactions. Gao and Kling (2008) also use the difference between accounts receivable and accounts payable to related parties divided by total assets as a proxy for tunneling; their relative measure shows that tunneling is highly related to corporate governance characteristics.

Following the spirit of Johnson *et al.* (2000) and Gao and Kling (2008), I define the controlling

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<sup>17</sup> See Johnson *et al.* (2000) for more details. In general, related party transactions are the gateway for operational tunneling. Albeit not all related party transactions lead to asset appropriation, the risk of operational tunneling is much higher in case of extensive transactions.

shareholders' tunneling (*TUL*) as the difference of accounts payable and accounting receivable divided by total assets.

Figure 1 depicts the mean and median tunneling by controlling shareholders by year over 2001-2010. The mean tunneling is 2.7% and the median tunneling is 0.9% in 2001, while the mean tunneling is -2.62% and the median tunneling is -1.35 % in 2010. Besides the impact of governance mechanisms and firm characteristics, the graph confirms a general decline of tunneling from 2001 to 2010 for the entire sample. The high positive value of tunneling in 2001 might be due to economic reforms in 2001, as China has undertaken the privatization process of state-owned firms to improve corporate governance since early 2000. On average, the controlling shareholders' average tunneling is positive prior to 2005, and become negative thereafter. The pattern of tunneling has greatly changed mainly because the Chinese government implemented a split-share structure reform in 2005. The goal of this reform is to eliminate non-tradable shares and transfer non-tradable shares to tradable shares by compensating existing shareholders through various ways such as bonus shares, cash, and stock options. This mandatory institutional change has resulted in significant changes in the ownership structure and firm liquidity thus affecting controlling shareholder's tunneling. The graph suggests the mandatory change in corporate institution that occurred in 2005 has a significant impact on the controlling shareholders' tunneling behaviors.

[Insert Figure 1 about here]

Starting from 1998, all the publicly listed firms in China are required by the CSRC to disclose top executive compensation in their annual reports according to the "Regulation for the Content and Format of Public Firms' Information Disclosure, No. 2: Content and Format of

Annual Reports”. Starting in 2001, all listed firms are required to report the sum of total compensation for the top three-highest-paid executives and the top three-highest-paid board members (including executive board members). In 2005, listed firms were further required to report each individual board member’s and top management’s total compensation. In this study, I use both types of executive compensation: total management team compensation and the three-highest-paid executives’ compensation. The former is the total remuneration to the members of the board of directors, the supervisory board, and senior management, the latter is the total annual cash compensation for the CEO and the two other highest-paid executives (often vice CEOs). To be consistent with the definitions in the literature, the compensation refers to the total cash compensation including base salary, bonuses, and commissions, not including the granting of stock options to executives. Equity incentive is rarely used in China because most listed firms are former SOEs and these companies only issue non-tradable shares to executives and employees, which cannot be sold in the public market.

Figure 2 depicts the mean executive compensation for Chinese public firms over 2001-2010. After 2001, the mean total management team compensation (MAG) increased steadily from 0.302 million Chinese yuan (US\$ 0.046 million) to 1.397 million Chinese yuan (US\$ 0.212 million) in 2010. The mean compensation of the three highest paid executives (THP) increased from 0.833 million Chinese yuan (US\$ 0.126 million) in 2001 to 3.597 million Chinese yuan (US\$ 0.545 million) in 2010. Moreover, the relative difference between the mean compensation of the three highest paid executives and the total management team widens over time. Specifically, the difference increased from 0.531 million Chinese yuan (US\$ 0.08 million) in 2001 to 2.574 million Chinese yuan (US\$ 0.39 million) in 2010. Of note is that the split-share structure reform implemented in China has had significant effects on Chinese executive

compensation as reflected by a big drop from 2004 to 2005. In general, the mean executive compensation increased consistently over time from 2001 to 2010.

[Insert Figure 2 about here]

Table 2 presents the summary of descriptive statistics. The mean  $LnTHP$  is 9.318 over the sample period 2001-2010, ranging from a high of 11.656 to a low of 6.726. The mean  $LnMAG$  is 8.585, ranging from a high of 10.669 to a low of 6.011. The mean  $ROA$  is very low (0.028) and left-skewed (-1.197), while the mean  $ERET$  is negative (-0.57) with a negative skew of -0.68. The statistics on firm performance indicates that the distributions of  $ROA$  and  $ERET$  imply potential violation of the normality assumption. Over the sample period, the maximum logarithm value of firm size is 28.437 and the minimum value is 16.826. The standard deviations of firm size, firm leverage and  $M/B$  are all very high, implying potential variations of economic characteristics across firms. On average, the largest shareholder holds around 39.6% of the total shares, the highest shareholding is 77.0%, and the lowest shareholding is 9.6%. In addition, the statistics show that the majority of the publicly listed firms have compensation committees or are state controlled, and most of these firms also have CEOs that serve as a member on the board. Finally,  $TUL$  represents the extent of controlling shareholders' tunneling. Over the entire sample, the average tunneling is -0.447 and the median tunneling is -0.688, ranging from a high of 26.564 to a low of -21.851. Most importantly, the high standard deviation of tunneling (6.509) indicates the probability of expropriation of minority shareholders varies across different types of firms and time horizons.

[Insert Table 2 about here]

Further examination of the correlation matrix in Table 3 illustrates that *LnTHP* and *LnMAG* are highly correlated (0.855). Firm performance measured by *ROA* has a stronger positive correlation with executive compensation (0.282 and 0.284) and a negative correlation with *TUL* (-0.177), while *ERET* has weaker positive correlations with *LnTHP* (0.079) or *TUL* (0.079), but a negative correlation with *LnMAG* (-0.104). When combined with the small mean value of *ROA* (0.028) and excess stock return value of *ERET* (-0.570) in table 2, it appears that Chinese executive compensation is associated with firm performance and controlling shareholder's tunneling. The table also shows that board size and the largest shareholder's ownership are negatively associated with Chinese executive compensation. However, the correlation between *SHARE1* and *HERF* is very high (0.967) and exceeds 0.5, implying potential multicollinearity problem if both variables are used in the regression. Therefore, in the following empirical studies, *SHARE1* is treated as a categorical variable with integers from "1" to "4" based on the proportion of shares held by the largest shareholder, where "1" denotes ownership less than 10%; "2" denotes ownership between 10% and 25%; "3" denotes ownership less than 50% but greater than 25%; "4" denotes ownership larger than 50%. After this transformation, multicollinearity should not be a problem.

[Insert Table 3 about here]

## **3.6 Methodology**

### **3.6.1 The Determinants of Tunneling and Regression Models**

I begin with estimating the cross-sectional regression model in equations (11) and (12). The theoretical foundation is that controlling shareholders' tunneling is associated with firm value; however, the interrelation of corporate governance mechanisms and operational tunneling

has not been studied. Therefore, it is compelling to test the impact of tunneling on firm performance; however, this specification would be biased without consideration of additional factors, such as firm characteristics and institutional ownership. In the following equation, besides taking corporate governance characteristics into consideration, I also incorporate firm characteristics (e.g. firm size, firm leverage, *M/B* ratio) and account for ownership structure (e.g. state ownership, ownership concentration, and *Herfindhal* index) and board characteristics. In addition, I use industry dummy variables and year dummy variables to capture the variations across industries and years. The rationale for selecting each variable is reported in the literature review.

Following prior literature, I estimate a pooled cross-sectional regression using a level specification rather than a change specification to examine the relationship between controlling shareholder's tunneling and firm performance. The advantage of this level specification is that the regression coefficients measure the proportionate effects of a variable on tunneling, while a change specification examines the elasticity effect (Murphy, 1999; Jackson *et al.* 2008). Since the sample firms are generally large firms, the level specification is appropriate (Core *et al.*, 1999). The specific model is estimated as follows:

$$\begin{aligned}
TUL_{i,t} = & \beta_0 + \beta_1 ROA_{i,t} + \beta_2 LnSIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 M/B_{i,t} + \beta_5 LnMEET_{i,t} \\
& + \beta_6 LnBSIZE_{i,t} + \beta_7 IDR_{i,t} + \beta_8 SHARE1_{i,t} + \beta_9 HERF_{i,t} \\
& + \beta_{10} CTRL_{i,t} + \beta_{11} SIC_{i,t} + \beta_{12} YEAR_{i,t} + u_{i,t}
\end{aligned} \tag{11}$$

The selected variables in equation 11 are defined as follows:



*TUL* is the difference of accounts payable and accounts receivable divided by total assets for firm *i* in year *t*.

*ROA* is return on assets defined as the ratio of annual earnings before interest and taxes to total assets for the prior year.

*ERET* is excess stock return defined as the yearly stock market return relative to the market return on the value-weighted Shanghai Composite Stock Index for the prior year.

*LnSIZE* is the natural logarithm of the total value of market capitalization.

*LEV* is leverage, or ratio of total debt to total equity using book values.

*M/B* is the Market-to-Book ratio calculated by dividing the year-end closing price of the stock by the latest quarter's book value per share.

*LnMEET* is the natural logarithm of the number of meetings per year among board members.

*LnBOARD* is the natural logarithm of the number of persons in the board.

*IDR*: is the percentage of independent directors in the board.

*SHARE1* is the proportion of shares held by the largest shareholder.

*CTRL* is a dummy variable which takes the value of 1 if the firm is state controlled, and 0 otherwise.

*HERF* is the *Herfindahl* index of shareholdings of the second to fifth largest shareholders.

*SIC* and *YEAR* are industry and year dummy variables respectively to control for fixed effects.

The accounting measure of tunneling may exhibit some inherent disadvantages since *ROA* is noisy. Because asset appropriation cannot be directly observed, if related party transaction is used as the only source of asset appropriation, it is hard to distinguish the

difference between normal related party transactions and transactions for operational tunneling. Moreover, an increase in accounts receivable may be a result of prior earnings management.

Previous studies show that a firm's stock market return is an important indicator to proxy firm performance ( Bae *et al.*, 2002; Cheung *et al.*, 2006). This stream of research assumes that the stock market is efficient in the sense that stock prices instantaneously reflects all information from the financial market. Accordingly, I also use excess stock market return *ERET* to proxy firm performance in the following equation:

$$\begin{aligned}
 TUL_{i,t} = & \beta_0 + \beta_1 ERET_{i,t} + \beta_2 LnSIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 M/B_{i,t} + \beta_5 LnMEET_{i,t} \\
 & + \beta_6 LnBSIZE_{i,t} + \beta_7 IDR_{i,t} + \beta_8 SHARE1_{i,t} + \beta_9 HERF_{i,t} \\
 & + \beta_{10} CTRL_{i,t} + \beta_{11} SIC_{i,t} + \beta_{12} YEAR_{i,t} + u_{i,t}
 \end{aligned} \tag{12}$$

To isolate the consequence of severe forms of asset appropriation, I apply quantile regressions by using the median (or 50 percentile) of the variables (Koenker and Hallock, 2001). Because a cross-sectional estimation does not consider time or firm specific effects, panel data regressions are further applied to isolate the within effect throughout the variables. To obtain reference estimates of the fixed effect model, I also use a random effect model to explain the extent of tunneling by using the same explanatory variables.

### 3.6.2 The Likelihood of Tunneling and Logistic Models

To investigate the probability of expropriation of minority shareholders by controlling shareholders in terms of CEO compensation, I create a binary dummy variable *D\_TUL* with a value of “1” if *TUL* is above the average level and “0” otherwise. The binary logistic regression has the advantage to of being able to predict whether a tunneling activity may occur based on

observed characteristics of the firm. Specifically, I use both Probit and Logit regressions to explore the probability of expropriation of minority shareholders. The Probit model assumes that the dataset follows a normal distribution, while the Logit model assumes the dataset follows logarithmic distribution. However, both methods will essentially have similar results due to a large sample size is used.

I also use other alternative logistic approaches to transforming the continuous measure of tunneling into an ordinal variable with five or ten ranks, respectively. An ordered logistic approach is capable of identifying whether the specified relationship between all pairs of groups is the same (McKelvey and Zavoina, 1975). In another words, the coefficients estimated from the ordered Logit model explain the relationship between the lowest *versus* all higher categories of the response variable and whether they are the same across different groups.

### **3.6.3 Endogeneity and 2SLS Models**

Controlling shareholders' tunneling and pay-performance sensitivity might be affected by some common factors such as ownership structure and board characteristics. For example, highly concentrated ownership makes it easier for controlling shareholders to divert resources from the public firms. Moreover, when the firm is controlled by the state, related party transactions are more likely to occur because most of the listed companies are carved out from their state-owned groups (Aharony *et al.*, 2010). To address this issue, I adopt a two-stage least square (2SLS) procedure to capture the impact of tunneling on executive compensation that is unrelated to ownership structure and board characteristics. However, a 2SLS approach requires finding appropriate instrumental variables to be used as exogenous variables.

In the first stage, I model controlling shareholders' tunneling as a function of ownership structure and board characteristics proposed in prior studies. I do so because prior studies find that ownership structure and board characteristics affect the likelihood of expropriation of minority shareholders as well as the level of executive compensation in China (Firth *et al.*, 2006; Kato and Long, 2006; Gu *et al.*, 2010). Specifically, I control for the ownership characteristics with three variables: *CTRL* is a dummy variable that equals 1 if the listed company is ultimately controlled by the government and 0 otherwise; *SHARE1* is a categorized variable to represent controlling shareholder's ownership measured as the proportion of shares owned by the largest shareholder; *HERF* is ownership concentration of other large shareholders measured as the *Herfindahl* index of shareholdings of the second to fifth largest shareholders. A higher level of *SHARE1* implies that the controlling shareholder has a stronger influence on listed companies because of their representation and voting rights on the board. A higher level of *HERF* indicates that other blockholders have more power to monitor the controlling shareholder. I also use three variables to proxy board characteristics: *LnMEET* is the natural logarithm of the total number of board meetings in a specific year; *LnBOARD* is the natural logarithm of the total number of persons on the board; *IDR* is the percentage of independent directors (outsiders) on the board.

$$\begin{aligned}
 TUL_{i,t} = & \beta_0 + \beta_1 LnMEET_{i,t} + \beta_2 LnBOARD_{i,t} + \beta_3 IDR_{i,t} + \beta_4 SHARE1_{i,t} + \beta_5 HERF_{i,t} \\
 & + \beta_6 CTRL_{i,t} + u_{i,t}
 \end{aligned} \tag{13}$$

In the second stage, I examine the association between pay-performance sensitivity and the unexplained tunneling, i.e., the impact of tunneling on executive compensation contracts that is unrelated to ownership characteristics. The other explanatory variables employed in the model are primarily based on Jiang *et al.* (2010) and Jian and Wong (2010). These common factors

could lead to an association between tunneling and executive compensation rather than tunneling itself.  $Res\_TUL_{i,t}$  is the residuals estimated from the first stages. Specifically, the second stage models are:

$$\begin{aligned} LnTHP_{i,t}/LnMAG_{i,t} = & \beta_0 + \beta_1 Res\_TUL_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LnSIZE_{i,t} + \beta_4 LEV_{i,t} \\ & + \beta_5 M/B_{i,t} + \beta_6 DUAL_{i,t} + \beta_7 COMP_{i,t} + \beta_8 SIC_{i,t} \\ & + \beta_9 YEAR_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (14)$$

$$\begin{aligned} LnTHP_{i,t}/LnMAG_{i,t} = & \beta_0 + \beta_1 Res\_TUL_{i,t} + \beta_2 ERET_{i,t} + \beta_3 LnSIZE_{i,t} + \beta_4 LEV_{i,t} \\ & + \beta_5 M/B_{i,t} + \beta_6 DUAL_{i,t} + \beta_7 COMP_{i,t} + \beta_8 SIC_{i,t} \\ & + \beta_9 YEAR_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (15)$$

Where  $LnTHP$  is the natural logarithm of the three-highest-paid executives' compensation adjusted for annual inflation.

$LnMAG$  is the natural logarithm of the total management team compensation adjusted for annual inflation.

$DUAL$  is a dummy variable which takes the value of 1 if the CEO serves simultaneously as the director of the board and 0 otherwise.

$COMP$  is a dummy variable which takes the value of 1 if the firm has a compensation committee and 0 otherwise.

To avoid inherent specification problems of a 2SLS approach, I conduct both Wu-Hausman  $F$ -tests and Durbin-Wu-Hausman  $Chi$ -squared tests to for model specification. Both tests cannot reject the null indicating that the instrumental variables selected in the model are appropriate.

## 3.7 Empirical Results

### 3.7.1 The Determinants of Tunneling and Results from Regressions

Table 4 reports the primary results from the cross-sectional, quantile, and panel data regressions. Model (1) and Model (2) show that controlling shareholder's tunneling responds to firm performance significantly. For example, the coefficients of *ROA* on *TUL* in Model (1) (-18.845) and Model (2) (-9.088) are both significant and negative, indicating that controlling shareholder's tunneling deteriorates shareholders' wealth. Seemingly, the panel regressions show that controlling shareholder's tunneling is negatively associated with firms' value as indicated by *ROA*. The coefficient of *ROA* on *TUL* in Model (3) (-11.50) is negative and significant, which is consistent with the findings of Model (1) and Model (2). The results also show that controlling shareholder's tunneling is associated with other firm factors such as *M/B* ratio, firm size and firm leverage. Interestingly, after controlling for fixed effects in Model (3), the results show that firm size is not a relevant driver and the interaction of ownership concentration and state ownership is weak. After controlling for fixed effects in Model (3), board size is also not a relevant driver for asset appropriation. However, the conclusion is made by examining the empirical results throughout the different types of regressions, and it is mainly drawn as suggested by Model (1) and Model (2).

By examining the effects of ownership structure on controlling shareholders' tunneling, I find that firms with more tunneling activities typically have larger controlling ownership, stronger state control and weaker balance of power of other large shareholders. Table 4 illustrates that the ownership structure has significant control effects on controlling shareholders' tunneling. Model (1) and Model (2) show that controlling shareholders' tunneling is positively

affected by ownership concentration (0.279 and 0.169). A higher level of shares held by the largest shareholder tends to increase the level of controlling shareholders' tunneling. On the other hand, *HERF* has significantly negative effects on controlling shareholder's tunneling. A one unit change in *HERF* tends to decrease *TUL* by -4.124 to -2.039 units. A negative effect of *HERF* indicates that other blockholders have strong balance of power to monitor controlling shareholders. The table also shows that controlling shareholder's tunneling has significant relationship with the involvement of state ownership. The positive coefficients of *CTRL* (1.390 and 0.718) indicate that the involvement of state ownership facilitates the controlling shareholder's tunneling behaviors. After the split-share reform, the reduction in shares held by the largest shareholder and the increase in balance of power by other large shareholders could partially explain the pattern shift of the controlling shareholder's tunneling behavior.

Table 4 also shows that controlling shareholders' tunneling has a significant relationship with board characteristics. Board meeting frequency, board size, and the involvement of independent directors on the board all have significantly positive effects on controlling shareholders' tunneling, suggesting that the board may ensure efficient monitoring of business activities as a helping-hand where corporate governance is weak. Model (1) and Model (2) show that board meeting frequency is not a significant indicator, however, the number of board meetings could be endogenous. For example, the number of board meetings might increase due to a high number of related party transactions that need approval. As a result, asset appropriation could cause more board meetings. Nevertheless, a high number of board meetings can be interpreted as a signal for a high importance of the board and hence sound corporate governance. From a theoretical perspective, both arguments are valid. Therefore, I further address the endogenous relationship between corporate governance and board meetings in the following

logistic regressions. In sum, the results reveal that the controlling shareholders' tunneling activities are accompanied with significantly weak board characteristics, suggesting that the controlling shareholders who tunnel assets out of publicly listed firms may be a result of the absence of monitoring by the board members.

[Insert Table 4 about here]

In table 5, I further examine whether the proxies for ownership structure, board characteristics and firm performance are important in explaining the controlling shareholders' tunneling activities for Chinese public firms. Because asset appropriation cannot be directly observed, if related party transaction is used as the only source of asset appropriation, it is hard to distinguish the difference between normal related party transactions and transactions for operational tunneling. Moreover, an increase in accounts receivable may be a result of current or prior earnings management. Thus, the accounting measure of tunneling may exhibit some inherent disadvantages since *ROA* is noisy. On the other hand, previous studies show that firm's stock market return is an important indicator to proxy firm performance ( Bae *et al.*, 2002; Cheung *et al.*, 2006). This stream of research assumes that the stock market is efficient in the sense that stock price instantaneously reflects all the information from the financial market. Hence, I use excess stock market return *ERET* to proxy firm performance in Table 5.

Table 5 shows that controlling shareholder's tunneling has no significant relationship with firm's stock market return. For example, the coefficients of *ERET* on *TUL* in Model (1) (0.134) and Model (2) (0.058) are both insignificant. The insignificant relationship might be caused by the inefficiency of the Chinese stock market. However, the panel regressions show that controlling shareholder's tunneling is positively associated with firms' excess return. The coefficients of *ERET* on *TUL* in Model (3) (0.182) and Model (4) (0.265) are both positive and



significant, which is contrary to the findings of Model (1) and Model (2). The results suggest that controlling shareholder's tunneling is associated with firm performance, and this relationship is stronger if firm performance is measured by accounting measures rather than by using stock return measures. The results are robust throughout various model specifications.

[Insert Table 5 about here]

### **3.7.2 The Likelihood of Tunneling and Results from Logistic Regressions**

To predict the likelihood of controlling shareholder's tunneling, I further employ more elaborate techniques, namely Probit, Logit, and ordered Logit regression models. Tables 6 and Table 7 report the empirical results on the likelihood of tunneling by assessing the impact of governance, ownership structures, and firm characteristics. In Table 6, the output from the Logit model indicates that the coefficient of *ROA* is -3.093. This means that with a one unit change in *ROA*, one would predict a -3.093 unit change in tunneling. To transform the coefficient into an odds ratio, I take the exponential of the coefficient (-3.093) to get an odds ratio of 0.025. Because an odds ratio less than one indicate a decrease, a negative coefficient actually confirms a deterioration of firm value as a result of tunneling.

For other economic determinants that affect a controlling shareholder's tunneling, I consider three proxies: firm size (*LnSIZE*), firm leverage (*LEV*), and Market-to-Book ratio (*M/B*). Although there is no significant relationship between *M/B* and tunneling, firm size and firm leverage have significant explanatory power in predicting the occurrence of a controlling shareholder's tunneling.

Table 6 illustrates that the ownership structure has significant predictive power in respects of controlling shareholders' tunneling. Model (1) and Model (2) show that tunneling is

significantly affected by ownership concentration (0.138 and 0.084), with a greater proportion of shares held by the largest shareholder tends to increase the likelihood of tunneling. On the other hand, *HERF* has significantly negative effects on controlling shareholder's tunneling (-1.098 and -0.667). A negative effect of *HERF* indicates that other blockholders have a strong balance of power to monitor the controlling shareholder. Table 6 also shows that a controlling shareholder's tunneling has a significant relationship with the presence of state ownership. The positive coefficients of *CTRL* (0.466 and 0.285) indicate that the involvement of state ownership facilitates a controlling shareholder's tunneling behavior. Finally, table 6 indicates that a controlling shareholder's tunneling has a significant relationship with board characteristics, less board meeting frequency, smaller board size, and lower number of independent directors on board, all tend to result in a higher probability of controlling shareholder' tunneling.

[Insert Table 6 about here]

Instead of using the accounting measure *ROA*, I further use excess stock market return *ERET* as a proxy for firm performance and report the results in Table 7. The empirical results from both Logit and Probit models show that *ERET* has a weaker but negative effect on the controlling shareholder's tunneling (as indicated by the coefficients of -0.16 and -0.096). It suggests that the excess returns earned by these firms might be associated with value gains from tunneling transactions. For example, firms may voluntarily provide more information about the related party transactions and earn positive excess returns from the stock market.

I further classify the controlling shareholders' tunneling into 5 and 10 ranks and apply an order Logit model in Model (3) and Model (4). The empirical results show that firms typically earn positive excess returns when related party transactions are reported as indicated by significant coefficients of *ERET* (-0.209 and -0.236). The empirical results on the effects of other

factors such as board characteristics and ownership structure are consistent with the findings of Model (1) and Model (2).

### 3.7.3 The Endogeneity Issues and Results from 2SLS Regression

Based on agency theory, I test the relationship between executive compensation and the level of controlling shareholder's tunneling. However, the endogeneity problem between tunneling and corporate governance might arise and bias the results (Wang & Xiao, 2011). For example, the corporate governance measures might affect a firm's tunneling behavior, but in turn, asset appropriation might influence governance structures, hence a tunneling reduction may be due to good corporate governance and not be driven by CEO entrenchment. To address this inherent endogeneity issue, I apply a 2SLS model to control for ownership structure and board characteristics in the first stage and to obtain the residuals from estimating the controlling shareholder's tunneling. In the second stage, to further test the pay-performance setting (Jensen and Murphy, 1990), I use *LnTHP* and *LnMAG* as dependent variables and control for *DUAL*, a CEO duality dummy and *COMP*, a compensation committee dummy.

Table 8 reports the empirical results of the relation between executive compensation and a controlling shareholder's tunneling and shows that there is a strong positive relationship between executive compensation and a controlling shareholder's tunneling. By using *ROA* as performance measure, the coefficients of *TUL* on *LnTHP* (0.056) and *LnMAG* (0.065) are both statistically significant and positive, indicating that an increase in CEO compensation is associated with controlling shareholders' tunneling. Model (2) and Model (4) use *ERET* as firm performance measure rather than *ROA* as firms' market performance. The coefficients of *TUL* on *LnTHP* (0.063) and *LnMAG* (0.070) are both positive and statistically significant, which is consistent with the CEO entrenchment hypothesis. The result implies that the controlling

shareholder might divert personal benefits from firms at the expenses of minority shareholders in the form of executive compensation.

Table 8 also shows that Chinese executive compensation responds to firm performance significantly. For example, the coefficients of *ROA* on *LnTHP* (3.839) and *LnMAG* (3.872) are both positive and significant, which indicates that an increase in CEO compensation is in line with an increase in shareholders' wealth. Model (2) and Model (4) show that Chinese executive compensation is positively associated with firms' market performance as the coefficients of *RET* on *LnTHP* (0.078) and *LnMAG* (0.047) are both positive and significant, which is consistent with the prediction of agency theory. Morse *et al.* (2011) argue that powerful CEOs induce their boards to shift the weight on performance measures towards the better performing measures, thereby rigging the incentive part of their pay. The results confirm that CEO compensation is associated with other firm economic factors such as *M/B* ratio, firm size and firm leverage.

Table 8 also illustrates that CEO duality has no significant impact on CEO compensation and the effect of compensation committees on executive compensation is positive and significant. Interestingly, the coefficients of *COMP* are not negative. Hence the presence of a compensation committee appears to be favorable towards executives as their presence seems to facilitate a higher level of executive compensation<sup>18</sup>. During the past decades in China, board characteristics have been continuously improved. By Chinese Company Law, 90% of the listed firms are required to have at least two independent directors by 2002. Following the German two-tier board structure, the law also requires firms to have an additional supervisory board. However, these mandatory supervisory boards have little real authority to monitor firm behavior.

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<sup>18</sup> Conyon and Peck (1998) find that a remuneration committee is associated with higher CEO pay level because outsiders or directors in the committee are not intimately familiar with the internal affairs of a company.

Fan *et al.* (2007) find that the monitoring function of Chinese boards is relatively weak. In addition, although the boards of directors are elected during shareholders' general meetings, over half of the directors are appointed by the State. Consequently, boards of directors generally lack independence and tend to rubber-stamp decisions made by the controlling shareholders. The results therefore appear to support the notion that the Chinese pay practice follows a relation-based rather than a market-based contract (Luo and Jackson, 2012).

[Insert Table 8 about here]

### **3.8 Conclusion**

This study explores the probability of expropriation of minority shareholders by controlling shareholders in terms of CEO compensation in an imperfect governance institution. I use a novel dataset of Chinese public firms over 2001-2010 to examine the determinants of the controlling shareholders' tunneling and the relationship between Chinese executive compensation and expropriation of minority shareholders. The results show that controlling shareholders' tunneling responds to firm performance significantly. There is clear evidence of deterioration effects relating to controlling shareholders' tunneling on firm performance, and this effect is much stronger when using an accounting measure rather than a stock market performance measure.

By examining the effects of ownership structure on controlling shareholders' tunneling, I find that firms with more tunneling activities typically have larger controlling ownership, stronger involvement of state control and less balance of power among large shareholders. The results also reveal that controlling shareholders' tunneling activities are accompanied by

significantly weak board characteristics, suggesting that the controlling shareholders who tunnel assets may be a result of the absence of monitoring by board members.

The 2SLS regression results indicate that an increase in CEO compensation is associated with controlling shareholders' tunneling. The positive relationship between controlling shareholders' tunneling and executive compensation is consistent with the CEO entrenchment hypothesis, which implies that a controlling shareholder might divert personal benefits from the public firms at the expense of minority shareholders in the form higher executive compensation.

Overall, the results provide evidence in support of the entrenchment skimming theory. The results suggest that controlling shareholders' tunneling might deteriorate firm performance and minority shareholder's wealth, and a strong corporate governance system and firm characteristics may ensure a lowering the likelihood of tunneling. Hence, economic reforms such as the attempt to improve corporate governance and to limit the influence of state ownership in publicly listed companies would be particularly helpful to prevent minority shareholders from expropriations by controlling shareholders.

Figure 3.1 Controlling Shareholders' Tunneling

The figure depicts the mean and median of controlling shareholder's tunneling for Chinese public firms by year from 2001 to 2010. The black bar depicts the mean, while the grey bar depicts the median. The controlling shareholders' tunneling (*TUL*) is defined as the difference of accounts payable and accounting receivable divided by total assets in percentage.

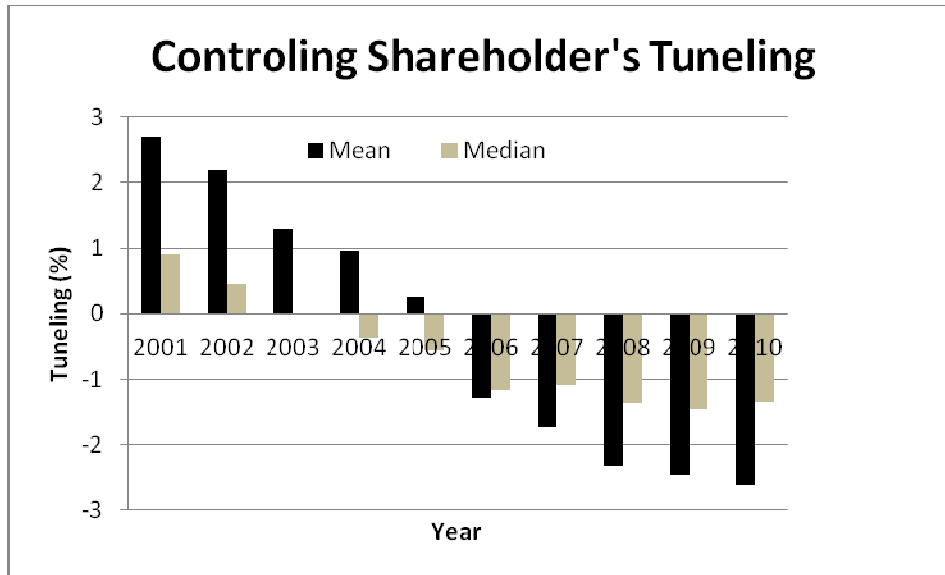


Figure 3.2 Mean Executive Compensation

The figure depicts the mean executive compensation for Chinese public firms by year from 2001 to 2010. THP is the three-highest-paid executive compensation, and MAG is the total management team compensation in million Chinese *yuan*.

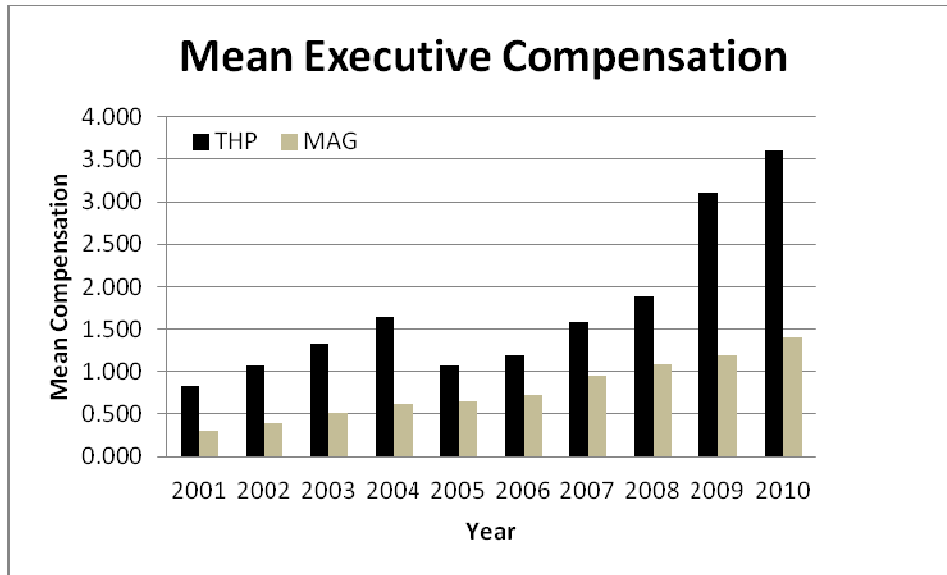




Table 3.1 Distribution and Descriptive Statistics of Ownership Concentration

The table reports the ownership distributions and descriptive statistics for the largest shareholder and the second largest shareholder for Chinese public firms over 2001-2010.

Year	Ownership distribution				Descriptive statistics			
	(0, 10%]	(10%, 25%]	(25%, 50%]	(50%, 1]	N	Mean	Median	S.D.
Panel A: The distribution of ownership of the largest shareholder								
2001	0.005	0.14	0.434	0.422	830	0.447	0.439	0.174
2002	0.004	0.147	0.436	0.413	934	0.441	0.437	0.173
2003	0.005	0.143	0.459	0.393	1033	0.436	0.43	0.17
2004	0.005	0.143	0.476	0.376	1104	0.429	0.418	0.167
2005	0.004	0.156	0.498	0.342	1167	0.412	0.396	0.16
2006	0.013	0.262	0.503	0.222	1094	0.365	0.345	0.15
2007	0.02	0.27	0.506	0.204	1097	0.359	0.345	0.15
2008	0.017	0.271	0.492	0.221	1127	0.363	0.348	0.155
2009	0.013	0.257	0.5	0.229	1143	0.369	0.345	0.158
2010	0.02	0.262	0.491	0.227	1171	0.366	0.344	0.159
Panel B: The distribution of ownership of the 2 <sup>nd</sup> largest shareholder								
2001	0.689	0.252	0.059		830	0.079	0.047	0.082
2002	0.67	0.264	0.065		934	0.084	0.05	0.083
2003	0.638	0.29	0.072		1033	0.089	0.058	0.085
2004	0.609	0.313	0.079		1104	0.094	0.067	0.087
2005	0.596	0.326	0.079		1167	0.097	0.069	0.087
2006	0.65	0.297	0.053		1094	0.086	0.056	0.079
2007	0.693	0.266	0.041		1097	0.08	0.048	0.075
2008	0.713	0.25	0.037		1127	0.077	0.047	0.075
2009	0.729	0.236	0.035		1143	0.074	0.044	0.074
2010	0.722	0.232	0.045		1171	0.075	0.044	0.077

Table 3.2 Descriptive Statistics

The table reports the descriptive statistics of selected variables for Chinese public firms over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *HERF* is the *Herfindahl* index of shareholdings of the second to fifth largest shareholders. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values.

	N	Mean	Median	S.D.	Min	Max	Skewness	Kurtosis
LnTHP	10695	9.318	9.328	0.971	6.726	11.656	-0.101	2.902
LnMAG	10695	8.585	8.648	0.923	6.011	10.669	-0.266	2.92
TUL	10697	-0.447	-0.688	6.509	-21.851	26.564	0.8	8.022
ROA	10697	0.028	0.028	0.06	-0.228	0.189	-1.198	7.927
ERET	10623	-0.57	-0.386	0.694	-2.639	0.547	-0.68	2.719
LnSIZE	10623	21.752	21.612	1.048	16.826	28.437	0.956	4.88
LEV	10697	1.303	1.012	1.117	0.069	6.768	2.276	9.999
M/B	10697	3.771	2.841	2.946	0.798	16.931	2.128	8.326
LnMEET	10695	2.039	2.079	0.396	0	4.025	0.062	3.776
LnBOARD	10695	1.842	1.792	0.298	0	2.944	-0.442	5.764
IDR	10695	0.507	0.5	0.213	0	1.25	0.086	5.373
SHARE1	10695	0.396	0.379	0.165	0.096	0.77	0.283	2.151
HERF	10695	0.201	0.166	0.136	0.016	0.591	0.828	2.956
CTRL	10697	0.241	0	0.428	0	1	1.211	2.465
DUAL	10697	0.874	1	0.332	0	1	-2.254	6.08
COMP	10695	0.664	1	0.472	0	1	-0.696	1.484

Table 3.3 Correlation Matrix

The table reports the correlation matrix of selected variables for Chinese public firms over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *HERF* is the *Herfindahl* index of shareholdings of the second to fifth largest shareholders. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. The total number of observations is 10700. The asterisk \* denotes the significance at the 5% level.

	LnTHP	LnMAG	TUL	ROA	ERET	LnSIZE	LEV	M/B	LnMEET	LnBOARD	IDR	SHARE1
LnTHP	1											
LnMAG	0.855*	1										
TUL	-0.156*	-0.205*	1									
ROA	0.281*	0.283*	-0.177*	1								
ERET	0.079*	-0.104*	0.079*	0.106*	1							
LnSIZE	0.458*	0.437*	-0.149*	0.399*	-0.046*	1						
LEV	0.052*	0.065*	-0.057*	-0.339*	-0.078*	-0.034*	1					
M/B	0.068*	0.089*	-0.104*	0.158*	-0.024*	0.306*	0.143*	1				
LnMEET	0.142*	0.194*	-0.051*	-0.010	-0.161*	0.140*	0.133*	0.086*	1			
LnBOARD	-0.015	-0.098*	0.064*	0.011	0.106*	0.066*	-0.017*	-0.059*	-0.114*	1		
IDR	0.229*	0.33*	-0.164*	0.046*	-0.194*	0.088*	0.087	0.005*	0.188*	-0.607*	1	
SHARE1	-0.074*	-0.11*	-0.027	0.143*	0.124*	0.193*	-0.065*	-0.071	-0.091*	0.064*	-0.105*	1
HERF	-0.065*	-0.102*	-0.021*	0.152*	0.137*	0.217*	-0.072*	-0.067*	-0.092*	0.081*	-0.110*	0.967*

Table 3.4 Controlling Shareholders' Tunneling and Firm Value--Regression Models

The table reports the regression results of controlling shareholders' tunneling on selected variables for Chinese public firms over 2001-2010. TUL is dependent variables defined as the difference of accounts payable and accounting receivable divided by total assets for firm  $i$  in year  $t$ . The reported standard errors for Fixed-effects model are adjusted for clustering effects. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively;  $t$ -statistics in parentheses.

Dependent Variable: TUL			
	Model (1)	Model (2)	Model (3)
	OLS	Quantile	Fixed-effects
ROA	-18.845*** (-15.95)	-9.088*** (-15.81)	-11.500*** (-5.11)
LnSIZE	0.253*** (3.25)	-0.015 (-0.41)	0.194 (1.12)
LEV	-0.370*** (-6.18)	-0.257*** (-8.82)	-0.681*** (-4.27)
M/B	-0.148*** (-5.99)	-0.045*** (-3.76)	-0.282*** (-5.55)
LnMEET	0.419** (2.57)	0.203** (2.56)	-0.452** (-2.28)
LnBOARD	-0.558** (-2.15)	-0.359*** (-2.85)	0.788 (1.58)
IDR	-0.852* (-1.88)	-0.309 (-1.40)	-3.738*** (-7.33)
SHARE1	0.279* (1.84)	0.169** (2.30)	0.557** (2.19)
HERF	-4.124*** (-4.82)	-2.039*** (-4.91)	1.436 (0.77)
CTRL	1.390*** (9.35)	0.718*** (9.92)	-0.373 (-0.99)
∑ SIC	Included	Included	
∑ YEAR	Included	Included	
N	10621	10621	10621
F	59.4		33.67
Adj. R <sup>2</sup>	0.146		
Pseudo R <sup>2</sup>		0.051	
Within R <sup>2</sup>			0.083

Table 3.5 Controlling Shareholders' Tunneling and Stock Performance--Regression Models

The table reports the regression results of controlling shareholders' tunneling on selected variables for Chinese public firms over 2001-2010. TUL is dependent variables defined as the difference of accounts payable and accounting receivable divided by total assets for firm  $i$  in year  $t$ . The reported standard errors for Fixed-effects model are adjusted for clustering effects. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively;  $t$ -statistics in parentheses.

Dependent Variable: TUL			
	Model (1)	Model (2)	Model (3)
	Cross-sectional	Quantile	Fixed-effects
ERET	-0.813*** (-4.99)	-0.340*** (-4.16)	0.179** (2.25)
LnSIZE	-0.097 (-1.29)	-0.189*** (-5.03)	0.040 (0.23)
LEV	-0.044 (-0.77)	-0.080*** (-2.83)	-0.430*** (-2.82)
M/B	-0.181*** (-7.16)	-0.080*** (-6.32)	-0.317*** (-6.32)
LnMEET	0.455*** (2.76)	0.214*** (2.59)	-0.413** (-2.05)
LnBOARD	-0.652** (-2.48)	-0.372*** (-2.83)	0.703 (1.39)
IDR	-1.016** (-2.22)	-0.522** (-2.28)	-3.888*** (-7.58)
SHARE1	0.256* (1.67)	0.139* (1.82)	0.510** (1.99)
HERF	-4.549*** (-5.26)	-2.155*** (-4.99)	0.360 (0.19)
CTRL	1.289*** (8.58)	0.613*** (8.15)	-0.478 (-1.27)
∑ SIC	Included	Included	
∑ YEAR	Included	Included	
N	10621	10621	10621
F	50.91		31.87
Adj. R <sup>2</sup>	0.127		
Pseudo R <sup>2</sup>		0.046	
Within R <sup>2</sup>			0.075

Table 3.6 Controlling Shareholders' Tunneling and Firm Value--Logit Models

The table reports the logistic regression results of controlling shareholders' tunneling on selected variables for Chinese public firms over 2001-2010. D\_TUL is dependent variables transformed into binary and ordinal variables from the continuous variables. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variable: D_TUL				
	Model (1)	Model (2)	Model (3)	Model (4)
	Logit	Probit	Ordered Logit5	Ordered Logit10
ROA	-3.093*** (-7.18)	-1.849*** (-7.20)	-4.381*** (-11.53)	-5.003*** (-13.28)
LnSIZE	-0.089*** (-3.19)	-0.053*** (-3.16)	-0.029 (-1.28)	-0.004 (-0.16)
LEV	-0.132*** (-6.11)	-0.079*** (-6.08)	-0.136*** (-7.28)	-0.139*** (-7.55)
M/B	-0.025*** (-2.84)	-0.016*** (-2.88)	-0.030*** (-3.99)	-0.033*** (-4.39)
LnMEET	0.010 (0.18)	0.005 (0.15)	0.064 (1.31)	0.077 (1.62)
LnBOARD	-0.197** (-2.14)	-0.120** (-2.14)	-0.193** (-2.49)	-0.195*** (-2.58)
IDR	-0.216 (-1.34)	-0.129 (-1.32)	-0.113 (-0.84)	-0.155 (-1.18)
SHARE1	0.138*** (2.60)	0.084*** (2.58)	0.137*** (3.04)	0.127*** (2.89)
HERF	-1.098*** (-3.64)	-0.667*** (-3.62)	-1.420*** (-5.60)	-1.403*** (-5.65)
CTRL	0.466*** (8.90)	0.285*** (8.91)	0.429*** (9.57)	0.459*** (10.44)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10621	10621	10621	10621
LR <i>Chi</i> -square	1211.51	1208.87	1789.81	1923.23
Log likelihood	-6756.12	-6757.44	-16189.83	-23493.97
% Correctly classified	64.04	64.17		
Pseudo R <sup>2</sup>	0.082	0.082	0.052	0.039

Table 3.7 Controlling Shareholders' Tunneling and Stock Performance--Logit Models

The table reports the logistic regression results of controlling shareholders' tunneling on selected variables for Chinese public firms over 2001-2010. D\_TUL is dependent variables transformed into binary and ordinal variables from the continuous variables. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variable: D_TUL				
	Model (1)	Model (2)	Model (3)	Model (4)
	Logit	Probit	Ordered Logit5	Ordered Logit10
ERET	-0.160*** (-2.81)	-0.096*** (-2.78)	-0.209*** (-4.32)	-0.236*** (-4.97)
LnSIZE	-0.146*** (-5.49)	-0.088*** (-5.44)	-0.104*** (-4.77)	-0.086*** (-4.04)
LEV	-0.079*** (-3.96)	-0.048*** (-3.95)	-0.061*** (-3.50)	-0.054*** (-3.13)
M/B	-0.029*** (-3.26)	-0.018*** (-3.29)	-0.039*** (-5.17)	-0.045*** (-5.95)
LnMEET	0.016 (0.28)	0.009 (0.25)	0.070 (1.43)	0.085* (1.79)
LnBOARD	-0.211** (-2.31)	-0.129** (-2.31)	-0.206*** (-2.66)	-0.212*** (-2.80)
IDR	-0.240 (-1.50)	-0.143 (-1.47)	-0.139 (-1.04)	-0.197 (-1.50)
SHARE1	0.136** (2.55)	0.082** (2.53)	0.134*** (2.99)	0.122*** (2.78)
HERF	-1.174*** (-3.90)	-0.713*** (-3.88)	-1.523*** (-6.00)	-1.508*** (-6.07)
CTRL	0.446*** (8.55)	0.274*** (8.58)	0.399*** (8.91)	0.422*** (9.60)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10621	10621	10621	10621
LR <i>Chi</i> -square	1166.33	1164.38	1672.97	1770.15
Log likelihood	-6778.71	-6779.68	-16257.25	-23570.51
% Correctly classified	63.88	63.92		
Pseudo R <sup>2</sup>	0.079	0.079	0.049	0.036

Table 3.8 Executive Compensation and Expropriation of Minority Shareholders—2SLS Models

The table reports the 2SLS regression results of Chinese executive compensation on controlling shareholders' tunneling and selected variables for Chinese public firms over 2001-2010. The dependent variables *LnTHP* and *LnMAG* are natural logarithmic values of the three-highest-paid executive compensation and the total management team compensation, respectively. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variables:				
	LnTHP		LnMAG	
	Model (1)	Model (2)	Model (3)	Model (4)
ROA	3.839*** (14.72)		3.872*** (15.18)	
ERET		0.078*** (3.12)		0.047* (1.92)
TUL	0.056*** (5.18)	0.063*** (5.68)	0.065*** (6.13)	0.070*** (6.40)
LnSIZE	0.344*** (34.37)	0.426*** (39.60)	0.312*** (31.86)	0.396*** (37.70)
LEV	0.103*** (11.23)	0.033*** (4.10)	0.086*** (9.57)	0.014* (1.79)
M/B	-0.036*** (-10.15)	-0.025*** (-6.45)	-0.015*** (-4.23)	-0.003 (-0.82)
DUAL	0.024 (0.97)	0.030 (1.15)	-0.028 (-1.17)	-0.024 (-0.93)
COMP	0.196*** (8.95)	0.212*** (9.21)	0.169*** (7.90)	0.185*** (8.25)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10621	10621	10621	10621
F	212.84	183.32	213.61	185.77
Adj. R <sup>2</sup>	0.272	0.195	0.231	0.156



## CHAPTER IV

### THE CROSS-LISTING DECISION OF CHINESE FIRMS: EXECUTIVE COMPENSATION, LIQUIDITY AND CORPORATE GOVERNANCE

#### 4.1 Introduction

The “China Concepts Stock” in the global market has attracted a great deal of attention among international investors due to the fast growth in the Chinese economy. The “China Concepts Stock” is a set of stock issued by companies whose assets or earnings have significant activities in mainland China. Investments in these stocks are considered as one of the purest investment plays on China’s long-term economic growth outside of direct foreign investment. Claessens *et al.* (2006) document that a country with better economic fundamentals (e.g. higher growth opportunities and income level) is associated with more firm international activities, such as listing, trading and capital raising in international exchanges. Since 1993, increasing numbers of Chinese firms have cross-listed in the global markets, and many international investors buy shares in these companies in order to participate in the spectacular growth of the Chinese economy (Cheung *et al.*, 2009).

Initially, a majority of the Chinese firms were traded as B-shares, and later on most of the Chinese publicly-traded firms were traded overseas in Hong Kong, Singapore and the U.S. market in the form of H-shares and American Depositary Receipts (ADRs) and served as a vehicle to

signal the quality of state owned enterprises (SOEs).<sup>19</sup> According to the logic of the Chinese government—“Let the most beautiful daughter marry first”, the Chinese overseas shares are selected by the government or dominated by SOEs and their issuances are primarily determined by political relations, not by the firms’ desire to find growth opportunities or expand foreign sales (Hung *et al.*, 2008). Thus, the Chinese cross-listings typically have more professional boards of directors, use greater accounting conservatism, and exhibit higher investment efficiency than their domestic counterparts.

Due to historical reasons, many Chinese companies traditionally have separate, restricted share classes for domestic residents and foreigners. There are five types of Chinese shares: (1) government shares, which are held by the State Assets Management Bureau (SAMB); (2) legal entity shares (or C shares), which are held by other state-owned enterprises; (3) employee shares, which are held by managers and employees; (4) ordinary domestic individual shares (or A-shares), which can be purchased only by Chinese citizens on the Shanghai or the Shenzhen stock exchange; and (5) foreign shares, which can be purchased only by foreign investors in Mainland China (B-share), in Hong Kong (H-share), or in the U.S. (N-share). The first three types of shares are not tradable in the official exchanges, although employee shares are allowed to be listed three years after the IPO. The A-shares and B-shares are both listed in mainland China. A-shares are open to Chinese local investors only and B-shares are open to foreign investors only, although the B-share market has been open up to Chinese local investors since March 2001. H-

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<sup>19</sup> Mr. Daojong Zhou, the former chairman of the China Securities Regulatory Commission (CSRC) talked to the CEOs of foreign listed firms and said: “Overseas-listed companies are all outstanding enterprises that are representatives of their respective industries to an extent. I hope you can also be the models of listed companies. The behavior of an overseas-listed company is not only the company’s own business, it relates to our country’s image of reform and openness (May 26, 1995, CSRC web news).”

shares are subject to stricter listing requirements on HKSE, for example, mandatory introduction of at least two independent non-executive directors, while N-shares are traded in U.S. and subject to the disclosure requirements of the Securities and Exchange Commission's (SEC) Exchange Act.

Very few studies have examined the difference between domestic shares and foreign shares issued by Chinese firms. For example, Eun and Huang (2007) show that Chinese investors value local A-shares more highly if the firm has corresponding B- and H- shares available to foreign investors. Yang and Lau (2006) document that there are differences between Chinese firms listed as H-shares in Hong Kong and ADRs in the U.S., and they suggest that the Hong Kong market may offer a better information environment for Chinese firms compared to the U.S. market. Fernald and Rogers (2002) document that the foreign shares were sold intentionally low with deep discounts to attract global investors, and these shares are identical other than who is allowed to own them, but foreigners have generally paid only about one-quarter the price paid by domestic residents.

This study is compelling because the motivations for Chinese firms to list overseas differ from their counterparts in the U.S. or European countries in many ways. First, the remarkable economic growth in China leads to strong incentives for Chinese firms to seek international capital via overseas listings. However, the Chinese domestic A-share and overseas listed H-shares or N-shares are segmented (Jia *et al.*, 2005). Therefore, it is important to examine how Chinese firms make decisions to list abroad and what are the determinants of their decisions. In addition, literature suggests that the aftermarket performance for different types of listings varies across markets. For example, Li *et al.* (2006) state that the returns on Chinese A-share and H-shares are significantly different, and Chinese ADRs and H-shares have an advantage compared

to B-shares. Wang *et al.* (2004) also study the effects of going public for Chinese SOEs and confirm the previous findings that the overseas listed shares are traded with deep discounts and the return differentials can be explained by their risk premiums. Second, China is the only country in which the government controls the size of the stock market, the pace of issue and the allocation of resources (Zhang and King, 2010). Zhang and King (2010) show that the average length of time for Chinese firms to list on a domestic exchange is 5 years. Gao (2002) also shows that the Chinese government represents an extreme case in terms of setting strict regulations for initial public offerings. Moreover, the privatization of government-owned banks takes away the cheap and easy access to bank loans, limiting the sources of capital for Chinese firms (Luo and Jackson, 2012). Therefore, to avoid the long and cumbersome process to list on domestic exchanges, the issuers are motivated to list overseas in order to meet their urgent capital needs. On the other hand, most European domestic capital markets are well established and therefore regarded as efficient, while the Chinese domestic stock markets are not efficient and the market prices of equity have strong intervention by the government and generally do not reflect the firms' market performances (Chen *et al.*, 1997; Zhang and Zhou, 2001). In addition, the Chinese domestic market is considered to be highly speculative and full of unexpected risks. For an investor seeking a better investment environment and long-term market returns, the Chinese domestic exchange is not an ideal choice. Finally, the Chinese domestic market is dominated by retail rather than institutional investors. In the U.S. and European economies, institutions and foreign investors account for over 60% of market capitalization, while the holdings of institutions and foreign investors in China are less than 25% (Gao, 2002). Due to the risk-aversion nature of retail investors, the Chinese stock market is very volatile and sensitive to

rumors and inside information, which results in very unstable supplies of capital and uncertain long-run uncertainties for investors.

This study contributes to the literature in the following ways. First, I examine the cross-listing decisions of Chinese firms from various stems of previous hypotheses based on agency theory, signaling hypothesis, and corporate governance theory. Zhang and King (2010) recently demonstrate that the motives of Chinese companies to list abroad differ by the types of issues and by market location. Cross-listing issuers are motivated by the legal and accounting standards of foreign markets, as well as the demands for external capital and foreign expertise. In this chapter, I simultaneously investigate the motives for Chinese firms to list abroad by incorporating the new risk factors summarized in Karolyi (2006) and other factors unique to Chinese companies. I study the importance of firm liquidity, executive compensation, and corporate governance on the motivation of cross-listing for the Chinese public firms based on agency theory, signaling hypothesis and bonding hypothesis.

Second, this is the first empirical study to comprehensively examine the motivations of Chinese firms to cross-list in the global market by taking into consideration managers' behaviors and executive compensation. According to Cheung *et al.* (2009), Chinese corporations account for 46% of total value and 56% of total turnover in the Hong Kong Exchange. Due to language barriers, geological preference, and the costs of offering, the Hong Kong Exchange is the first choice for Chinese issuers, while the U.S. and European markets are attractive due to the market size and liquidity rather than regional preference or cultural similarity (Sarkissian and Schill, 2004). However, the reasons why many Chinese companies seek to list overseas are still plausible. Jia *et al.* (2005) point out that the possible reason and claim that H-share firms chosen for listing in Hong Kong, especially in the earlier days, were based on political considerations

rather than on economic merits. Fernald and Rogers (2002) document that Chinese companies traditionally have separate and restricted classes of shares for domestic residents and foreigners. These shares are identical other than for eligible investors, but foreigners have generally paid only about one-quarter the price paid by domestic residents. Hung *et al.* (2008) examine the political relations and overseas stock exchange listing for Chinese state-owned enterprises, and find evidence that the cross-listing decision of Chinese SOEs is primarily determined by political needs, not by firms' desire to fund growth and expand foreign sales.

Third, this study has important implication for international investors to better understand the institutional features of Chinese firms in the international market. Initially, foreign shares were issued at deep discounts relative to local shares to attract global investors. However, the goal of this study is to see whether China's privatization program, as a whole, can leverage foreign exchanges to improve the SOEs' performance. Sun and Tong (2003) and Wang *et al.* (2004) study the going-public process and success of Chinese A-shares by observing the stock behaviors of the SOEs. Zhang and King (2010) compare the sample of issuers that list outside of China with those that list on domestic exchanges. This study, on the other hand, uses a unique sample of Chinese firms over 2001-2010 and mainly focuses on the Chinese A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations relative to those domestic shares. Therefore, this study provides further insights for international investors into the understanding of the institutional features and firm value in Chinese firms.

Finally, I examine the impacts of split-share structure reform on overseas listings and investigate how this institutional change is related to the motivations to list overseas for Chinese public firms. At the early stage, the main target of overseas listing of Chinese firms was to raise

foreign capital. “Crossing the river through touching stones”, which is a Chinese saying that means doing things by trial and error, and this is also the approach that China is following with overseas listings (Jia *et al.*, 2005). Mr. Zhou, the former chairman of the CSRC also mentioned that “Recommending medium-to-large SOEs for overseas listing is useful in raising necessary foreign capital; but more importantly, it prods SOEs to learn from the successful experiences of overseas companies, helping them to match international standards, and making it possible for them to compete in the international market (July 26, 1995, CSRC web news).” However, starting in 2005, the CSRC launched a split-share structure reform aimed at eliminating all non-tradable shares and transferring non-tradable shares into tradable shares. This mandatory institutional change has resulted in significant changes in the IPO issuance and firm liquidity, and the domestic Chinese market for new issuances was frozen. The split-share structure reform results in a remarkable increase in overseas listings and many of these companies seek to list in the U.S. through reverse mergers or backdoor IPO listings. Cheung *et al.* (2008) find that there are significant differences in information disclosure between China and the neighboring Hong Kong market. Propped up firms are more likely to have foreign shareholders (such as B-shares, H-shares and ADRs) compared to firms subject to tunneling listed on the Chinese domestic markets. Thus, this paper provides further insight into the understanding of the great impacts of institutional changes on cross-listings.

The results reveal that the Chinese cross-listing issuers are motivated to list overseas by the legal and accounting standards of the foreign markets, management remuneration, as well as the demands for external capital and foreign expertise. This study examines the determinants of cross-listing for Chinese public firms over 2001-2010. I focus on the A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations. I

study the importance of firm liquidity, executive compensation, and corporate governance on the decision to cross-list for Chinese public firms based on agency theory, and the signaling and bonding hypotheses. The results suggest that the level of Chinese executive compensation is associated with the decision to cross-list, and cross-listings could be employed by the management as a way of asset appropriation. Moreover, a firm is more likely to list overseas if it experiences value deterioration, or lack growth opportunities. Finally, the results show that board characteristics have a more important role in determining to cross-list on Hong Kong exchanges relative to the B-share market. The results have important implications for a better understanding of CEO entrenchment and investor protection under imperfect corporate governance institution.

The rest of the chapter is organized as follows: Section 2 presents the literature review and develops the hypotheses. Section 3 discusses the data and Section 4 outlines the theoretical framework and methodologies. Section 5 reports the empirical analysis. Section 6 concludes.

## **4.2 Literature Review and Hypotheses**

Numerous research initiatives endeavor to synthesize the motivations why firms attempt to issue new equities overseas.<sup>20</sup> Earlier research based on market segmentation theory states that firms seek cross-border issuance in order to overcome barriers and gain access to more international investments (Black, 1974; Solnik, 1974; Errunza and Losq, 1985; Merton, 1987; Foerster and Karolyi, 1998, 1999). The rationales to support the market segmentation theory mainly come from two major streams of hypotheses: the liquidity hypothesis, which claims that cross-listing firms can benefit from a lower cost of capital in the sense that the greater the liquidity, the lower the risk premium (Tinic and West, 1974; Amihud and Mendelson, 1987;

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<sup>20</sup> See Karolyi (1998, 2006) and Bianconi and Tan (2008) for a detail review of the cross-listing literature and a thorough investigation of the motivations for overseas listings.



Werner and Kleidon, 1996; Smith and Sofianos, 1997; Domowitz, *et al.*, 1998; Foerster and Karolyi, 1998, 2000; Miller, 1999). Another is the access to capital hypothesis, which states that global markets are more accessible to international investors (Fanto and kamel. 1997; Pagano *et al.*, 2002; Burns, 2004; Tolmunen and Torstila, 2005). However, given the fact that the global market has been well developed during the past decades and most of the barriers across the nations have been removed, the studies along the market segmentation theory are still puzzling and could hardly reach a consensus among academics and practitioners.

The existing literature along the dimension of liquidity theory states that globalization improves the firms' opportunities to raise capital, and thus significantly increases the firms' liquidity and lowers the firms' leverage. Sarkissian and Schill (2004) examine the market preferences of firms listing abroad and find that geographic, economic, cultural, and industrial proximity is the main determinant of the choice of overseas listing exchange. On the other hand, the U.S. and European markets are attractive alternatives when one considers market size and liquidity. Existing literature typically agrees that cross-listed firms obtain a short-term positive abnormal return and a long-run negative abnormal return (Jayaraman *et al.*, 1993; Miller, 1999; Foerster and Karolyi, 1999; Benos and Weisbach, 2004). Foerster and Karolyi (1999) show that ADRs earn an abnormal return of 19% during the prelisting year, an additional 1.2% during the listing week, but incur losses of 14% during the year following listing. They conclude that the results can be partially explained by increases in the subsequent increase in liquidity and the amount of capital at the time of cross-listing.

Similar to Foerster and Karolyi (1999), Miller (1999) analyzes the stock price in response to cross-listing events and confirms the short term gains. Moreover, Mittoo (2003) points out that the effects of liquidity and market segmentation vary over time, he finds that Canadian firms

underperform a benchmark index by 13% to 30% during a three-year period after cross-listing in the U.S., which is consistent with the results of Alexander *et al.* (1988). Mittoo (2003) also documents a deterioration of operating performance during the 3 years following the cross-listing event. Sarkissian and Schill (2009) use a longer period of up to ten years before and after the cross-listing event to study the stock performance of cross-listed firms and they find little evidence of a permanent effect on stock returns for firms that list abroad.

The economic rationale for this liquidity effect has been well documented in Jensen and Meckling's (1976) seminal work. The agency theory states that an overseas listing contributes to corporate value by increasing the firms' free cash flow and reducing the firms' leverage. There are two reasons. First, free cash flow implies a strong information effect for both IPOs and ADRs listed in the U.S. market over the long run. It not only depends upon agency considerations, but also has different information effects on different firms. Jensen (1986) predicts that the availability of free cash flow in a firm can affect managers' investment decision, and the ability to invest over time is constraint with the level of earnings or debt. Second, the capital structure indicates that pure leverage changes have a strong announcement effect for the short-run market return as well as long-run operating performance. These predictions are also consistent with the differential information effects observed by Howe *et al.* (1992) and Denis *et al.* (1994) that the reduction in the agency costs provides a different rationale for increases in earnings because reducing firm leverage is perceived as good news for over-investing firms. In addition, previous event studies have investigated the impact of debt-for-equity exchanges on long-run stock performance and confirm that the leverage changes have significant effects on the aftermarket performance of publicly listed firms (Jensen, 1986; Stulz, 1999). Therefore, firm size and financial leverage interact to provide significant information about the decision of cross-listing.

Thus, I propose an agency-based hypothesis stating that the overseas listing decision of Chinese firms is associated with firms' leverage and firm size due to liquidity effects.

Liquidity hypothesis: The overseas listing decision of Chinese firms is motivated by a desire to raise capital and increase firm liquidity.

Recent studies lean on the behavioral hypothesis stating that globalization of capital market affects firm values due to a signaling effect. The signaling models are based on the premise that cross-listing signals market participants about the firm's quality and long-run profitability (Amihud and Mendelson, 1987; Smith and Sofianos, 1997; Domowitz *et al.*, 1998; Foerster and Karolyi, 1999). The signaling theory hypothesizes that the overseas-listing decision is driven by top management, and thus the long-run stock performance is substantially affected by the managers' behaviors. There are at least two reasons why management behaviors affect firm values. First, management typically has more information about the profitability of a project than do investors, which is referred as the "information asymmetry" problem (Fuerst, 1998; Baker *et al.*, 2002). Second, investors might be concerned that management will make poor use of the capital because its own objectives differ from those of investors, which is documented as shareholder-manager conflict or "agency cost" problem (Coffee, 1999; Stulz, 1999; Doidge, *et al.*, 2004). Accordingly, there is a growing body of empirical evidence on the impact of management behaviors on firm's globalization. For example, Loughran and Ritter (1995) present evidence that companies successfully time their offerings for periods when valuations are high, with investors receiving low returns in the long-run. Lang and Litzemberger's (1989) use Tobin's Q as an indicator of manager's over-investment. They find that companies with a high Tobin's Q seem to have desirable resources and could be an attractive prey for asset appropriation. In turn,

asset appropriation should reduce Tobin's Q in the future, as essential resources disappear, which lowers value-creation potential.

In this dissertation, I argue that managers' behaviors exhibit a stronger information effect for Chinese publicly listed firms. Initially, the Chinese government wished to use foreign listings as a means of improving the quality of SOEs and of making them role models for locally listed SOEs, however, Chinese SOEs that listed overseas went through a process that was not necessarily based on the economic merits of the firms. There are several reasons. First, the Chinese domestic market is relatively under-developed as the security markets were established only in the early 1990s. The domestic capital market is unable to digest large and continuous IPO pressure; therefore, diverting large IPOs to overseas markets eases the issuing pressure in the domestic market. Both Subrahmanyam and Titman (1999) and Megginson *et al.* (2004) find evidence to support the view that overseas IPOs facilitate the development of domestic stock markets. Second, the overseas listings are traded intentionally at a deep discount relative to the domestic market price. This phenomenon is interpreted as a scale of economy and availability of information (Pagano *et al.* 2002; Saudagaran, 1998). Pagano *et al.* (2002) show that firm size is one of the major factors that can explain a firm's decision to cross-list in both the U.S. and European markets. In fact, the offering price of Chinese IPOs is always set far below the market level by the CSRC to stimulate the incentives of domestic investors for a successful subscription.

Third, the ownership structure of a Chinese publicly listed firm is very unique. For the majority of these firms, the predominant groups of shareholders are the state or other legal entities that own a large portion of shares that are not tradable. Hence, individual and institutional investors can only purchase the tradable shares, which are approximately one-third of the total number of common shares. As a result, the new issues typically represent a small

portion of the tradable public shares, while the majority of other shares are not allowed to be traded by public investors. Accordingly, companies with weak corporate governance seem to have desirable resources and could be an attractive prey for asset appropriation by the controlling shareholder. Therefore, I examine the level of Chinese executive compensation and the cross-listing decision by hypothesizing that:

Signaling hypothesis: The level of Chinese executive compensation is associated with the decision to cross-list, and cross-listed firms have higher level of executive compensation.

The existing studies overwhelmingly confirm the valuation effects of overseas listings in well-established capital markets (Doidge *et al.*, 2004). The widely accepted belief is that the well-established exchanges provide unique gains to foreign firms due to more stringent listing requirements and accounting standards which help to improve the corporate governance and operating performance of the overseas-listed firms. Sanger and McConnell (1986), McConnell and Sanger (1987), and Dharan and Ikenberry (1995) all report abnormal returns around changes in domestic equity listing, especially for new equity offerings (Asquith and Mullins, 1986; Ritter, 1991; Loughran and Ritter, 1995). A large body of empirical studies find abnormal returns around global equity offerings as well (Foerster and Karolyi, 2000; Henderson *et al.*, 2006). Specifically, Foerster and Karolyi (1999) find a 28% drop in the local market beta across all foreign firms cross-listed in the United States, while Errunza and Miller (2000) report that foreign firms listed in the U. S. experience an 11.4% decline in their cost of capital. Sarkissian and Schill (2004) conduct similar research and also find some evidence supporting the conclusion that firms listed in markets that require greater information disclosure, on average achieve higher abnormal returns. Kaul *et al.* (2006) study changes in the U.S. institutional ownership and its effects for 83 new listings of Canadian equities and find change in institutional

ownership is associated with cross-listing on the U.S. exchanges, although the sources of these valuation effects are not well understood.

Much evidence has been assembled in support of the corporate governance hypothesis because globalization improves corporate governance and thereby lowers the cost of capital (Foerster and Karolyi, 1993, 1999; Jayaraman *et al.*, 1993; Alexander *et al.*, 1988; Errunza and Miller, 2000; Kaul *et al.*, 2006; Hail and Leuz, 2009). The corporate governance theory assumes that a firm's value depends heavily on its corporate governance system because cross-listings are associated with substantial increases in firm value and reduction of cost of capital, thus, firms often make decision to list on foreign markets with more rigorous corporate governance procedures because of the poor domestic disclosure or transparency standards. More specifically, Doidge *et al.* (2004) relate cross-listed firms' gains to an increase in shareholder protection, referred to as the bonding hypothesis. The "bonding" hypothesis states that because of the information asymmetry and agency cost problems, a firm's cost of capital will also depend on its corporate governance system (Stulz, 1999). Doidge *et al.* (2004) suggest that overseas listed firms become bonded to the stricter regulations existing in the U.S. and thus they are likely to have better visibility and coverage in the financial press which may lead them to expropriate less. They further claim that firms with weak investor protections tend to benefit the most from cross-listing on exchanges with better shareholder protections. The Chinese domestic market has been well documented as having weak investor protection, hence I argue that Chinese public firms are motivated to list overseas in pursuit of better value gains by taking advantage of more stringent corporate governance systems in the global market.

Changes in corporate governance and firm characteristics convey information to the stock market about the future performance of the firms. The legal system is an effective external

mechanism to protect minority shareholders. Many studies posit that the Chinese stock market institution is very unique and quite different from that of international stock markets. In China, all shares have the same voting and cash flow rights by law, but in reality, the stock market is segmented, as Chinese listed shares can be classified according to the residency of their owner as domestic (A-shares) or foreign (B-, H-, and N-shares). A-shares are available exclusively to Chinese domestic investors, and are denominated in the Chinese currency, while foreign shares are only available for trade by non-residents. Huang and Song (2005) studied the pre- and post-listing financial and operating performance for a complete sample of H-shares between 1993 and 2000. One of the surprising findings is that the performance of newly listed private firms declined more than that of the state-owned H-firms. The authors attribute such an anomaly to the positive privatization effect that offsets the negative IPO effect for the H-firms. Kao *et al.* (2009) focus on two sets of IPO regulations: pricing regulations and penalty regulations. They find that Chinese IPO firms that report higher pricing-period accounting performance have engaged in more income-increasing earnings management. On the other hand, penalty regulations have deterred IPO firms from making over-optimistic earnings forecasts and therefore have a positive impact on the behavior of IPO firms. Tian (2011) finds that the extreme Chinese IPO underpricing is principally caused by government intervention with IPO pricing regulations and the control of IPO share supplies. In this study, I assume that the goal of Chinese firms to cross-list is to achieve better corporate governance because the international capital markets are subject to more stringent legislative institutions and accounting standards which help to improve the operating performance and reduce cost of capital for overseas-listed Chinese firms.

Corporate governance hypotheses: The goal of Chinese firms to cross-list is to achieve better corporate governance because the international capital markets are subject to more

stringent legislative institutions and accounting standards which help to improve the operating performance and reduce cost of capital.

### **4.3 Data**

This study focuses on the Chinese A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations relative to those domestic shares, and also because cross-listings facilitate the calculation of the value of the sample firms. The Chinese stock market was established in the early 1990s. The Shanghai Securities Exchange (SHSE) was opened in 1990, followed by the establishment of the Shenzhen Stock Exchange (SZSE) in 1991. From May 2004, SZSE formally established a Small and Medium Enterprise board (SME) for growing firms. Chinese A-shares are open to Chinese local investors only although the Chinese stock market was made partially accessible to foreign investors. Initially, Chinese B-shares were open to foreign investors only, although the B-share market has been open up to Chinese local investors since March 2001. In 2005, the CSRC introduced a split-share structure reform. Under this framework, non-tradable shares eventually become limited-tradable shares and in a longer horizon, the limited-tradable shares will become regular tradable shares until they can trade without limit. Most Chinese firms choose to cross-list in Hong Kong. HKSE provides the main listing board for major companies with a record of consistent operation and profit as well as a Growth Enterprise Market (GEM) that was established on November 25, 1999. In recent years, there are a growing number of Chinese firms that list stocks or ADRs on U.S. exchanges, including AMEX, NYSE and NASDAQ.

As of Dec 31, 2011, a total of 2234 A-shares and 108 B-shares were listed on mainland China domestic markets (including both SHSE and SZSE) with a total tradable market



capitalization of Chinese *yuan* 21475.81 billion (equivalent to 3405.84 billion U.S. dollar).

According to the statistics of CSRC, a total of 171 H-shares were issued, among which 29 stocks were listed on GEM and 142 H-shares were listed on the main board of HKSE. The total market capitalization of H-shares is HK\$ 4101.27 billion (equivalent to 527.97 billion U.S. dollar).

Moreover, 63 Chinese firms list their stocks or ADRs on NYSE and 180 Chinese firms list their stocks or ADRs on NASDAQ and the market capitalization for each exchange is around 10 billion U.S. dollar. A detailed illustration of different types of Chinese domestic and overseas shares is reported in Table 1.

[Insert table 1 about here]

Due to historical reasons, a large amount of non-tradable shares exist in Chinese stock market and this causes severe agency problems. Starting from 2005, the CSRC launched a split-share structure reform aimed at eliminating all non-tradable shares and transferring non-tradable shares into tradable shares. This mandatory institutional change has resulted in significant changes in IPO issuance and firm liquidity, and the domestic Chinese markets for new issuances has been frozen. Since 2005, a remarkable increase in overseas listings has been observed as more and more Chinese firms seek to cross-list in the U.S. market. Starting from 1998, all publicly-listed firms in China are required by the CSRC to disclose top executive compensation in their annual reports according to the “Regulation for the Content and Format of Public Firms’ Information Disclosure, No. 2: Content and Format of Annual Reports”. In the 2001 amended version, listed firms are required to report the sum of total compensation for the three-highest-paid management and the three-highest-paid board members (including executive board members). In the 2005 amended version, listed firms are required to report each individual board member’s and top management’s total compensation.

Table 2 reports the descriptive statistics of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. Panel A shows that, for those A-shares that concurrently issue B-shares, the mean  $LnTHP$  is 9.71 over the sample period 2001-2010, ranging from a high of 11.656 to a low of 6.726. The mean  $LnMAG$  is 8.987, ranging from a high of 10.669 to a low of 6.011. The mean  $ROA$  is very low (0.033) and left-skewed (-0.661), while the mean  $ERET$  is negative (-0.549) with a negative skew of -0.726. The statistics on firm performance indicates that the distributions of  $ROA$  and  $ERET$  imply potential violation of the normality assumption. Over the sample period, the maximum logarithm value of firm size is 25.97 and the minimum value is 20.13. The standard deviations of firm size, firm leverage, and  $M/B$  are all very high, implying potential variations of economic characteristics across the firms.

On average, the largest shareholder holds around 37.5% of the total shares; the largest shareholding is 77.0%, and the lowest shareholding is 9.6%. In addition, the statistics shows that the majority of publicly-listed firms have compensation committees or are controlled by the state, and most of these firms also have CEOs that serve as a member on the board. In contrast, Panel B shows that for those A-shares that concurrently issue H-shares, the mean  $LnTHP$  is 10.205 over the sample period 2001-2010, ranging from a high of 11.656 to a low of 6.726. The mean  $LnMAG$  is 9.289, ranging from a high of 10.669 to a low of 6.011. The mean  $ROA$  is relatively larger (0.052) and left-skewed (-0.628), while the mean  $ERET$  is negative (-0.658) with a negative skew of -0.664. The statistics on firm performance confirms that the distributions of  $ROA$  and  $ERET$  imply potential violation of the normality assumption. Over the sample period, the maximum logarithm value of firm size is 28.437 and the minimum value is 16.826. The standard deviations of firm size, firm leverage, and  $M/B$  are all very high, implying potential variations of economic characteristics across the firms. In sum, the descriptive statistics shows

that those firms that cross-listed as H-shares typically have higher levels of executive compensations, larger firm size, and better firm performance and corporate governance characteristics.

[Inset table 2 about here]

I further examine the correlation matrix for selected variables in Table 3. For those firms that concurrently issue B-shares, panel A illustrates that *LnTHP* and *LnMAG* are highly correlated (0.835). Firm performance measured by *ROA* has a stronger positive correlation with executive compensation (0.317 and 0.293), while *ERET* has weaker positive correlations with *LnTHP* (0.043), and even a negative correlation with *LnMAG* (-0.163). Table 3 also shows that board size, *M/B*, and the largest shareholder's ownership are all negatively associated with Chinese executive compensation. In contrast, panel B shows that *LnTHP* and *LnMAG* are highly correlated (0.818). Firm performance measured by *ROA* has a stronger positive correlation with executive compensation (0.127 and 0.136), while *ERET* has weaker positive correlations with *LnTHP* (0.072), and even a negative correlation with *LnMAG* (-0.25). It also shows that both *M/B* and the largest shareholder's ownership are negatively associated with Chinese executive compensation, the correlation coefficients of *M/B* and *SHARE1* are -0.083 and -0.19 with *LnTHP* and for B-shares and -0.112 and -0.038 with *LnTHP* for H-shares, respectively. Moreover, board size tends to negatively correlated with Chinese executive compensation as indicated by the coefficients of -0.020 and -0.092 with *LnTHP*. In sum, there is no significant correlation between each variable that exceeds 0.5, implying that potential multicollinearity should not be a problem.

[Insert Table 3 about here]

## 4.4 Methodology

### 4.4.1 Two Samples Mean and Median Tests

To compare the difference in determinants that affect the decision to cross-list as B-shares and H-shares, I conduct the two samples mean  $t$ -tests of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. The selected variables include executive compensation ( $LnTHP$ ,  $LnMAG$ ), firm performance ( $ROA$ ,  $ERET$ ) and other firm economic factors such as  $LnSIZE$ ,  $LEV$ , and  $M/B$ . To investigate the influence of ownership structure, I use  $CTRL$  and  $SHARE1$  to proxy the involvement of state ownership and ownership concentration. Moreover, I use  $LnBOARD$ ,  $IDR$  and  $LnMEET$  to examine the impact of board characteristics on the cross-listing decision. Due to the fact that two samples mean  $t$ -tests have inherent disadvantages of selectivity to outliers, I further conduct two samples median  $Chi$ -square tests as a robustness check.

### 4.4.2 Probit and Logit Regression Models

To investigate the cross-listing decision of Chinese firms to issue B-shares, I create a binary dummy variable  $D\_BSHARE$  with a value of “1” if a domestic firm concurrently issues B-shares and “0” otherwise. I also use another binary dummy variable  $D\_HSHARE$  with a value of “1” if a domestic firm concurrently issues H-shares and “0” to investigate the decision to cross-list on the Hong Kong Exchange. The binary logistic regression has the particular advantage of being able to predict whether a cross-listing decision may occur based on observed characteristics of the firm. Specifically, I use both Probit and Logit regressions to explore the decision to list overseas for Chinese public firms. The Probit model assumes that the dataset follows a normal distribution, while the Logit model assumes the dataset follows a logarithmic

distribution. However, both methods will essentially have similar results if a large sample size is used in the empirical studies.

$$\begin{aligned}
 \text{Logit}(D\_B\text{SHARE}_{i,t}) = & \beta_0 + \beta_1 \text{LnTHP}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
 & + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHARE1}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
 & + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{11} \text{SIC}_{i,t} + \beta_{12} \text{YEAR}_{i,t} + u_{i,t}
 \end{aligned} \tag{1}$$

$$\begin{aligned}
 \text{Logit}(D\_H\text{SHARE}_{i,t}) = & \beta_0 + \beta_1 \text{LnTHP}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
 & + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHARE1}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
 & + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{11} \text{SIC}_{i,t} + \beta_{12} \text{YEAR}_{i,t} + u_{i,t}
 \end{aligned} \tag{2}$$

The explanatory variables in the above equations are defined as follows:

*LnTHP* is the natural logarithm of the three-highest-paid executives adjusted for annual inflation.

*ROA* is return on assets defined as the ratio of annual earnings before interest and taxes to total assets for the prior year.

*LnSIZE* is the natural logarithm of the total value of market capitalization.

*LEV* is leverage, or ratio of total debt to total equity in book value.

*M/B* is the Market-to-Book ratio calculated by dividing the year-end closing price of the stock by the latest quarter's book value per share.

*LnMEET* is the natural logarithm of the number of board meetings per year.

*LnBOARD* is the natural logarithm of the number of persons in the board.

*IDR*: is the percentage of independent directors in the board.

*SHARE1* is the proportion of shares held by the largest shareholder.

*CTRL* is a dummy variable which takes the value of 1 if the firm is controlled by the state, and 0 otherwise.

*DUAL* is a dummy variable which takes the value of 1 if the CEO serves simultaneously as a director of the board and 0 otherwise.

*COMP* is a dummy variable which takes the value of 1 if the firm has a compensation committee and 0 otherwise.

*SIC* are industry dummy variables which take the value of 1 and 0 otherwise for a specific industry classified by GICLS issued by the CSRC.

*YEAR* are year dummy variables which take the value of 1 and 0 otherwise for a specific year over the entire sample period.

#### 4.4.3 Robustness Checks

Previous literature shows that firm performance can be measured by using both internal accounting performance and external market performance (Core *et al.*, 1999). Following the spirit of Core *et al.* (1999), I measure internal performance by using return on asset (ROA) from the accounting statement. However, Firm's stock market return is an important indicator to proxy firm performance ( Bae *et al.*, 2002; Cheung *et al.*, 2006). The rationale to use stock market return is based on the assumption that the stock market is efficient in the sense that the stock price instantaneously reflects all information from the financial market. Hence, for the purpose of a robustness check, I also use excess stock market return *ERET* to proxy the firm' external market performance and construct the following equations:

$$\begin{aligned}
 \text{Logit}(D\_B\text{SHARE}_{i,t}) = & \beta_0 + \beta_1 \text{LnTHP}_{i,t} + \beta_2 \text{ERET}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
 & + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHAREI}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
 & + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{13} \text{SIC}_{i,t} + \beta_{14} \text{YEAR}_{i,t} + u_{i,t}
 \end{aligned} \tag{3}$$

$$\begin{aligned}
\text{Logit}(D\_HSHARE_{i,t}) = & \beta_0 + \beta_1 \text{LnTHP}_{i,t} + \beta_2 \text{ERET}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
& + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHARE1}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
& + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{11} \text{SIC}_{i,t} + \beta_{12} \text{YEAR}_{i,t} + u_{i,t}
\end{aligned} \tag{4}$$

Where *ERET* is excess stock return defined as the yearly stock market return relative to the market return on the value-weighted Shanghai Composite Stock Index for the prior year.

Other studies also use Tobin's Q to measure firm performance. Tobin's Q is defined as the market value of firm assets divided by the repurchase value of firm assets and indicates whether a company's valuation level is higher than the repurchase value of its assets. Hence, a company with a Tobin's Q exceeding one creates value by combining its resources, whereas a company with a ratio below one should be acquired or liquidated. Accordingly, companies with a high Tobin's Q seem to have desirable resources and could be an attractive prey for asset appropriation. In turn, asset appropriation should reduce Tobin's Q in the future, as essential resources disappear, which lowers value-creation potential. However, due to the existence of non-tradable shares in the Chinese stock market, using the market price to calculate Tobin's Q may result in severe bias.

In this study, I use both types of executive compensation: the three-highest-paid executives' compensation and total management team compensation. The former is the total annual cash compensation for the CEO and the two other highest-paid executives (often vice CEOs), while the latter is the total remuneration to the members of the board of directors, the supervisory board, and senior management. To be consistent with the definitions of CEO compensation in the literature, compensation refers to the total cash compensation including base salary, bonuses, and commissions, but does not include the granting of stock options to

executives. As a robustness check, I also use the total management team compensation (*LnMAG*) instead of the three-highest-paid executives' compensation (*LnTHP*) in the following equations:

$$\begin{aligned}
 \text{Logit}(D\_B\text{SHARE}_{i,t}) = & \beta_0 + \beta_1 \text{LnMAG}_{i,t} + \beta_2 \text{ERET}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
 & + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHAREI}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
 & + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{11} \text{SIC}_{i,t} + \beta_{12} \text{YEAR}_{i,t} + u_{i,t}
 \end{aligned} \tag{5}$$

$$\begin{aligned}
 \text{Logit}(H\_B\text{SHARE}_{i,t}) = & \beta_0 + \beta_1 \text{LnMAG}_{i,t} + \beta_2 \text{ERET}_{i,t} + \beta_3 \text{LnSIZE}_{i,t} + \beta_4 \text{LEV}_{i,t} + \beta_5 \text{M/B}_{i,t} \\
 & + \beta_6 \text{LnMEET}_{i,t} + \beta_7 \text{LnBSIZE}_{i,t} + \beta_8 \text{IDR}_{i,t} + \beta_9 \text{SHAREI}_{i,t} + \beta_{10} \text{CTRL}_{i,t} \\
 & + \beta_{11} \text{DUAL}_{i,t} + \beta_{12} \text{COMP}_{i,t} + \beta_{11} \text{SIC}_{i,t} + \beta_{12} \text{YEAR}_{i,t} + u_{i,t}
 \end{aligned} \tag{6}$$

Where *LnMAG* is the natural logarithm of the total management team compensation adjusted for annual inflation.

## 4.5 Empirical Results

### 4.5.1 Results from Two Samples Mean and Median Tests

Table 4 reports the two samples mean *t*-tests of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. For those firms that concurrently issue B-shares, panel A illustrates that *LnTHP*, *LnMAG*, *ROA*, *LnSIZE*, *M/B*, *LnMEET*, and *SHAREI* are significant at the 5% level. In contrast, for those firms that concurrently issue H-shares, panel B illustrates that *LnTHP*, *LnMAG*, *ROA*, *ERET*, *LnSIZE*, *M/B*, *LnBOARD*, *IDR*, and *SHAREI* are significant at the 5% level. In sum, the two samples mean *t*-tests confirm that executive compensation, firm size, firm performance, ownership concentration, and board characteristics are all important factors that affect the cross-listing decision. Particular, board size and board independence are more important factors for cross-listing as H-shares.



[Insert Table 4 about here]

Because two samples mean *t*-tests have inherent disadvantages of selectivity to outliers, I further conduct a two samples median *Chi*-square tests of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. Panel A in Table 5 illustrates that for those firms that concurrently issue B-shares, *LnTHP*, *LnMAG*, *LnSIZE*, and *M/B* are significant at the 5% level, and *LnMEET* and *SHARE1* are marginally significant factors. In contrast, for those firms that concurrently issue H-shares, panel B illustrates that *LnTHP*, *LnMAG*, *ROA*, *LnSIZE*, *LEV*, *LnBOARD*, *IDR* and *SHARE1* are significant at 5% level. In sum, the results from the two samples median *Chi*-square tests are essentially consistent with the two samples mean *t*-tests, confirming that executive compensation, firm size, firm performance, ownership concentration, and board characteristics are all important factors that affect the cross-listing decision. Particularly, board characteristics are more influential in determining to cross-list on the Hong Kong stock exchange.

[Insert Table 5 about here]

#### **4.5.2 Empirical Results from Probit and Logit Regression Models**

In Model (1) and Model (2) (see Table 6), I employ both Probit and Logit regression models to predict the odds that a Chinese public firm will cross-list as B-shares. The results indicate that *LnTHP* has a significant and positive effect on the decision to cross-list as B-shares for Chinese public firms. Specifically, the positive coefficient (0.259) from the Probit model in Model (1) implies that a one-unit increase in *LnTHP* is associated with an increase in the predicted odds to cross-list as B-shares by 29.56% (equivalent to the exponential of 0.259 minus one). Also, the positive coefficient (0.507) from the Logit model in Model (2) implies that a one-

unit increase in  $LnTHP$  is associated with an increase in the predicted odds to cross-list as B-shares by 66.03% (equivalent to the exponential of 0.507 minus one). Moreover, both  $LnSIZE$  and  $M/B$  also have positive effects on the decision to cross-list as B-shares, indicating that the occurrence of cross-listing as B-shares is associated with improvement in firm size and growth opportunities. On the contrary, it shows that  $ROA$ ,  $LnBOARD$ ,  $SHARE1$ ,  $CTRL$ , and  $COMP$  all have significant and negative effects on the odds to cross-list as B-shares. The results imply that a firm is less likely to issue B-shares if it is controlled by a large shareholder, or has state ownership, a large board size, and a compensation committee on the board.

In Model (3) and Model (4) of Table 6, I employ both Probit and Logit regression models to predict the probability that a Chinese public firm to cross-list as H-shares. Results show that  $LnTHP$  has a significant and positive effect on the decision to cross-list as H-shares for Chinese public firms. Specifically, the positive coefficient (0.388) from the Probit model in Model (3) implies that a one-unit increase in  $LnTHP$  is associated with an increase in the predicted odds to cross-list as H-shares by 47.7% (equivalent to the exponential of 0.388 minus one); seemingly, the positive coefficient (0.761) from Logit model in Model (4) implies that a one-unit increase in  $LnTHP$  is associated with an increase in the predicted odds to cross-list as H-shares by 114.04% (equivalent to the exponential of 0.761 minus one). Moreover,  $LnSIZE$ ,  $LnMEET$ ,  $IDR$ , and  $COMP$  also have positive effects on the decision to cross-list as H-shares, indicating that the occurrence of cross-listing as H-share is associated with improvement in firm size, board meeting frequency, and the presence of independent directors or a compensation committee on the board. On the contrary, results show that  $ROA$ ,  $M/B$ , and  $CTRL$  all have significant and negative effects on the odds to cross-list as H-shares. For example, the negative coefficient (-4.223) on firm value  $ROA$  from the Probit model in Model (3) implies that a one-unit decrease in

*ROA* is associated with an increase in the predicted odds to cross-list as H-shares by 98.53% (equivalent to the exponential of -4.223 minus one); seemingly, the negative coefficient (-8.359) from the Logit model in Model (4) implies that a one-unit decrease in *ROA* is associated with an increase in the predicted odds to cross-list as H-shares by 99.98% (equivalent to the exponential of -8.359 minus one). The results imply that a firm is less likely to issue H-shares if it experiences value deterioration, lack of growth opportunities, or is controlled by the state.

Table 6 also shows that *LEV* and *DUAL* have no significant impacts on cross-listing decisions. Although *LnMEET* and *IDR* have no significant impacts on a firm's cross-listing decisions as B-shares, they have significant and positive impacts on a firm's cross-listing decisions as H-shares. It seems that board characteristics have a more important role in determining to cross-list in Hong Kong relative to the domestic B-share market. The reasons rely on the fact that over half of the directors are appointed by the state owners in China, although in practice boards of directors are elected during shareholders' general meetings. Consequently, boards of directors generally lack independence and tend to rubber-stamp management and controlling shareholders' decisions.

The CSRC issued guidelines for introducing independent directors in 2001, and 90% of listed companies had introduced at least two independent directors by 2002. Following the German two-tier board structure, Chinese company law requires firms to have an additional supervisory board. In practice, however, supervisory boards have little real authority to monitor firm behavior. Nevertheless, Luo and Jackson (2012) find that there is no significant link between the presence of non-executive directors on boards and CEO compensation, suggesting that the monitoring function of Chinese boards is very weak. Moreover, the number of board meetings could be endogenous. The number of board meetings might increase due to a high

number of related party transactions that need approval. As a result, asset appropriation could cause more board meetings. Nevertheless, a high number of board meetings can be interpreted as a signal of high importance of the board and hence of sound corporate governance. From a theoretical perspective, both arguments are valid. In addition, Jensen (1993) claims that when the CEO also performs as the chairman of the board, the lack of board independence makes it “extremely difficult for the board to respond early to failure in its top management team”. According to Jensen’s theory, when there is duality in the leadership position, the board is less likely to constrain executive power, and thus, the decision is more favorable towards the managers’ interests. In China, a majority of firms have a CEO who is also the chair or member on the board. The empirical study is consistent with agency theory that when the CEO is also the board chair agency costs are higher (Brickley *et al.*, 1997). Therefore, the results support the view that powerful CEOs can exercise enormous sway over boards, rendering the boards ineffective in setting appropriate CEO contracts (Bebchuk and Fried, 2004), particularly, when the corporate governance institution is weak.

[Insert table 6 about here]

#### **4.5.3 Empirical Results from Robustness Checks**

In Table 7, I use firms’ stock market excess return (*ERET*) as an indicator to proxy firm performance rather than the accounting measure *ROA* because the internal performance measure may exhibit some inherent disadvantages since it is noisy. On the other hand, corporate governance systems are determined not only by the internal controls such as independent boards and effective incentive compensation plans, but also external elements such as legal protection for minority shareholders, sophisticated and activist institutional investors, and well-functioning takeover markets. From this perspective, firm value increases because globalization improves

corporate governance and thereby lowers the cost of external financing by reducing information and agency costs. Hence, this stream of research assumes that the stock market is efficient in the sense that stock prices instantaneously reflect all information from the financial market.

In Model (1) and Model (2) of Table 7, I employ both Probit and Logit regression models to predict the odds that a Chinese public firm cross-list as B-shares. It shows that *LnTHP* have significant and positive effect on the decision to cross-list as B-shares for Chinese public firms. Moreover, *LnSIZE* and *M/B* also have positive effects on the decision to cross-list as B-shares, indicating that the occurrence of cross-listing as B-shares is associated with improvement in firm liquidity and growth opportunities. On the contrary, it shows that *LnBOARD*, *SHARE1*, *CTRL*, and *COMP* all have significant and negative effects on the odds to cross-list as B-shares. The results imply that a firm is less likely to issue B-shares if it is controlled by the largest shareholder and has state ownership, or with a larger board size and the presence of compensation committees. In contrast, Model (3) and Model (4) of Table 7 show that the odds of a Chinese public firm to cross-list as H-shares are positively associated with executive compensation. Moreover, *LnSIZE*, *LEV*, *LnMEET*, *IDR*, and *COMP* also have positive effects on the decision to cross-list as H-shares, indicating that the occurrence of cross-listing as B-shares is associated with improvement in firm liquidity, capital structure policies, and firm characteristics. On the contrary, it shows that *M/B* and *CTRL* have significant and negative effects on the odds to cross-list as H-shares. The results imply that a firm is less likely to issue H-shares if it is controlled by the state or lacks growth opportunities.

Unfortunately, a significant relationship between *ERET* and the cross-listing decision is not supported in the table. The reason perhaps lies on the fact that the Chinese stock market is still in the early stage and there is still some reservations regarding the efficiency of the Chinese

stock market. In addition, Jia *et al.* (2005) argue that overseas listed SOEs have more professional boards of directors, display greater accounting conservatism, exhibit higher investment efficiency, and thus have better post-listing stock performance than their domestically listed counterparts. However, the long-run underperformance of H-shares stock returns indicates that investors do not particularly favor China's privatized firms. Hence, the result differs from the findings of Megginson *et al.* (2000) that the returns of state-owned firms outperformed their industry peers and world benchmarks from the first to the fifth years after listing. One possible reason might be that the SOEs managed their earnings prior to listings (Teoh *et al.*, 1998). However, DuCharme *et al.* (2001) claim that the continuous decline of stock prices year after year cannot be due solely to earnings management prior to the IPO, they believe that negative returns reflect the market's negative view. It is also true that the Hong Kong stock market is a market "external" to China, but in contrast to other international financial markets, the independence of the Hong Kong stock market is relatively weak. Another possible reason may be that H-share firms are actually not particularly good because the companies chosen for listing in Hong Kong, especially in the earlier days, were based on political considerations rather than on economic merits (Jia *et al.*, 2005). Sarkissian and Schill (2004) point out the reason that Hong Kong stock exchange is the first choice for Chinese issuers is due to language barriers, geological preference, and the costs of offering, while the U.S. and European markets are attractive due to the market size and liquidity rather than regional preference or cultural similarity. However, the reasons why many Chinese companies seek to list as H-shares rather than as B-shares are more likely due to political arrangements rather than corporate decisions.

[Insert table 7 about here]

Table 8 reports the Probit and Logit regression results of the cross-listing decision by using *LnMAG* as a measure of executive compensation instead of using *LnTHP*. and other selected variables as independent variables for Chinese public firms over 2001-2010. Starting from 1998, the CSRC required that all publicly-listed firms in China have to disclose top executive compensation in their annual reports. Starting in 2001, all public firms are required to report the sum of total compensation for the three-highest-paid management and the three-highest-paid board members (including executive board members). Since the three-highest-paid executive compensations are more affected by recent global financial crisis, I also use the total management team compensation to diagnostically check the robustness of the conclusion by isolating the impact of recent financial crisis.

In Model (1) and Model (2) of Table 8, I employ both Probit and Logit regression models to predict the odds that a Chinese public firm cross-list as B-shares. Results show that *LnMAG* have significant and positive effect on the decision to cross-list as B-shares for Chinese public firms. Specifically, the positive coefficient (0.345) from the Probit model in Model (1) implies that a one-unit increase in *LnMAG* is associated with an increase in the predicted odds to cross-list as B-shares by 41.20% (equivalent to the exponential of 0.345 minus one). Also, the positive coefficient (0.683) from the Logit model in Model (2) implies that a one-unit increase in *LnMAG* is associated with an increase in the predicted odds to cross-list as B-shares by 97.98% (equivalent to the exponential of 0.683 minus one). Moreover, *LnSIZE* and *M/B* also have positive effects on the decision to cross-list as B-shares, indicating that the occurrence of cross-listing as B-shares is associated with improvement in firm size and growth opportunities. On the contrary, it shows that *ROA*, *LnBOARD*, *SHARE1*, *CTRL*, and *COMP* all have significant negative effects on the odds to cross-list as B-shares. For example, the negative coefficient (-

1.127) from Probit model in Model (1) implies that a one-unit increase in *SHARE1* is associated with a decrease in the predicted odds to cross-list as B-shares by 67.6% (equivalent to the exponential of -1.127 minus one); seemingly, the negative coefficient (-2.386) from Logit model in Model (2) implies that a one-unit increase in *SHARE1* is associated with a decrease in the predicted odds to cross-list as B-shares by 90.8% (equivalent to the exponential of -2.386 minus one). The results imply that a firm is less likely to issue B-shares if it is controlled by a single large shareholder and has state ownership, or has a larger board size.

In Model (3) and Model (4) of Table 8, I employ both Probit and Logit regression models to predict the odds that a Chinese public firm to cross-list as H-shares. It shows that *LnMAG* has a significant and positive effect on the decision to cross-list as H-shares for Chinese public firms. Specifically, the positive coefficient (0.264) from the Probit model in Model (3) implies that a one-unit increase in *LnMAG* is associated with an increase in the predicted odds to cross-list as H-shares by 30.2% (equivalent to the exponential of 0.264 minus one). In addition, the positive coefficient (0.553) from the Logit model in Model (4) implies that a one-unit increase in *LnMAG* is associated with an increase in the predicted odds to cross-list as H-shares by 73.85% (equivalent to the exponential of 0.553 minus one). Moreover, *LnSIZE*, *LnMEET*, *IDR*, and *COMP* also have positive effects on the decision to cross-list as H-shares, indicating that the occurrence of cross-listing as H-shares is associated with improvement in firm size, board meeting frequency, and the presence of independent directors or compensation committees on the board. On the contrary, it shows that *ROA*, *M/B*, and *CTRL* all have significant and negative effects on the odds to cross-list as H-shares. For example, the negative coefficient (-3.194) on firm value *ROA* from Probit model in Model (3) implies that a one-unit decrease in *ROA* is associated with an increase in the predicted odds to cross-list as H-shares by 95.9% (equivalent



to the exponential of -3.194 minus one). Further, the negative coefficient (-7.721) from Logit model in Model (4) implies that a one-unit decrease in *ROA* is associated with an increase in the predicted odds to cross-list as H-shares by 99.96% (equivalent to the exponential of -7.721 minus one). The results imply that a firm is more likely to issue H-shares if it experiences value deterioration, or lacks growth opportunities or is controlled by the state. In sum, after isolating the impact of the global financial crisis on executive compensation, I conclude that board characteristics have a more important role in determining whether to cross-list in Hong Kong relative to the domestic B-share market.

[Insert table 8 about here]

#### 4.6 Conclusion

This study examines the determinants of cross-listing for Chinese public firms over 2001-2010 by focusing on the A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations. I study the importance of firm liquidity, executive compensation, and corporate governance on the decision to cross-list for Chinese public firms based on agency theory, and the signaling and bonding hypotheses. The results suggest that cross-listing issuers are motivated to list overseas by the legal and accounting standards of the foreign markets, management remuneration as well as the demands for external capital and foreign expertise.

I employ both Probit and Logit regression models to predict the odds that Chinese public firms will cross-list as either B-shares or H-shares. It shows that *LnTHP* has a significant and positive effect on the decision to cross-list for Chinese public firms. To isolate the impact of recent financial crisis on executive compensation, I also use *LnMAG* as a measure of executive compensation; it shows that both executive compensation measures have significant and positive

effects on the decision to cross-list as either B-shares or H-shares. The positive coefficients on executive compensation imply that a one-unit increase in executive compensation is highly associated with an increase in the predicted odds to cross-list for Chinese public firms. The results provide strong evidence in support of the signaling hypothesis that the level of Chinese executive compensation is associated with the cross-listing decision, and cross-listings could be employed by the management as a means of asset appropriation, which results in higher compensation contract levels.

The results imply that a firm is more likely to list overseas if it experiences value deterioration, or lacks growth opportunities. In another words, the occurrence of cross-listings is associated with improvement in firm size and growing opportunities. Moreover, firm performance measured as *ROA* shows that firm value has significant and negative effects on the odds to cross-list as B-shares or H-shares. Unfortunately, a significant relationship between *ERET* and the cross-listing decision is not supported in this research. The reason perhaps is due to the fact that the Chinese stock market is still in the early development stage and there is some concerns regarding the efficiency of the Chinese stock market. The results partially support the liquidity hypotheses that the overseas listing decision of Chinese firms is motivated to raise capital and increase firm liquidity, and thus the cross-listing decision is associated with improvement in firm size and changes in firm leverage.

The results show that a firm is more likely to issue B-shares if it is controlled by the largest shareholder and has state ownership, or has a larger board size on average. Moreover, *LnMEET*, *IDR*, and *COMP* also have positive effects on the decision to cross-list as H-shares, indicating that the occurrence of cross-listing as H-shares is associated with increase in board meeting frequency, the presence of independent directors, or compensation committees on the

board. Jia *et al.* (2005) argue that overseas listed SOEs have more professional boards of directors, use greater accounting conservatism, exhibit higher investment efficiency, and thus have better post-listing stock performance than their domestically listed counterparts. However, such issues are also subject to government control, not only at the managers' discretion. Another possible reason may be that H-share firms chosen for listing in Hong Kong, especially in the earlier days, were based on political considerations rather than on economic merits (Jia *et al.*, 2005). In sum, I conclude that board characteristics have a more important role in determining whether to cross-list in Hong Kong relative to the B-share market.

The results generally support the CEO entrenchment theory suggesting that cross-listing might be used as a way of asset appropriation by the controlling shareholders or managers. The fact is that although 90% of the Chinese public companies have introduced at least two independent directors, in practice, supervisory boards have little real authority to monitor firm behavior. In this case, Jensen (1993) claims that when the CEO also performs as the chairman of the board, the lack of board independence makes it "extremely difficult for the board to respond early to failure in its top management team". According to Jensen's theory, when there is duality in the leadership position, the board is less likely to constrain executive power, and thus, the decision is more favorable towards the managers' interests. In China, a majority of firms have a CEO who is also the chair or board member, which results in weak corporate governance in public firms. Nevertheless, Luo and Jackson (2012) find that there is no significant link between the presence of non-executive directors on boards and CEO compensation, suggesting that the monitoring function of Chinese boards is very weak.

Finally, the results support that powerful CEOs can exercise enormous sway over boards, rendering the boards ineffective in setting appropriate CEO contracts (Bebchuk and Fried, 2004),

particularly, when the corporate governance institution is weak. In this study, I also find that the effects of board meeting frequency on the cross-listing decision are mixed. The reason might be that the number of board meetings could be endogenous. The number of board meetings might increase due to a high number of related party transactions that need approval. As a result, asset appropriation could cause more board meetings. Nevertheless, a high number of board meetings can be interpreted as a signal of high importance of the board and hence of sound corporate governance. From a theoretical perspective, both arguments are valid. Therefore, a high number of board meetings can be interpreted as a signal for board importance and hence sound corporate governance. In sum, the results have important implications to help us better understand CEO entrenchment and investor protection under imperfect corporate governance institutions.

Table 4.1 Summary Statistics of Different Types of Chinese Shares

This table reports the total number of listings and market capitalization for Chinese shares listed in both domestic and overseas markets. A-shares are those shares that can only be purchased by Chinese citizens on the domestic market including SHSE or the SZSE, while B-shares are foreign investment shares listed in mainland China on the SHSE or the SZSE that can be purchased by foreign investors. H-shares are issued by mainland Chinese firms but listed or cross-listed on the Hong Kong Exchange (HKEX), which includes a main listing board and a Growth Enterprise Market (GEM). N-shares are those stocks or ADRs issued by Chinese firms in the U.S. capital market, which includes the NYSE and NASDAQ. The market capitalizations are reported in billions U.S. dollar. The market capitalizations are reported in billions U.S. dollar. The local currencies are converted to the U.S. dollar as of the exchange rate on Dec 30, 2011 (1USD=7.76799HKD, 1USD=6.30559CNY). Data Sources: China Securities Regulatory Commission ([http://www.csrc.gov.cn/pub/csrc\\_en/marketdata/security/monthly/](http://www.csrc.gov.cn/pub/csrc_en/marketdata/security/monthly/)). Hong Kong Exchanges and Clearing Limited ([http://www.hkex.com.hk/eng/stat/smstat/chidimen/cd\\_mc.htm](http://www.hkex.com.hk/eng/stat/smstat/chidimen/cd_mc.htm)). New York Stock Exchange--Listing Directory ([http://www.nyse.com/about/listed/lc\\_all\\_region\\_7.html?country=2](http://www.nyse.com/about/listed/lc_all_region_7.html?country=2)). NASDAQ-Company lists in China (<http://www.nasdaq.com/screening/companies-by-region.aspx?region=Asia&country=China>).

	Domestic listings		Overseas listings			
	(SHSE+SZSE)		H-shares		N-shares	
	<u>A-share</u>	<u>B-share</u>	<u>Main board</u>	<u>GEM</u>	<u>NYSE</u>	<u>NASDAQ</u>
Total number of listings	2234	108	142	29	63	180
Market capitalization	3390.64	15.2	527.41	0.56	10.01	10.5

Table 4.2A Descriptive Statistics

The table reports the descriptive statistics of selected variables for Chinese public firms that concurrently issued B-share over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values.

	N	Mean	Median	S.D.	Min	Max	Skewness	Kurtosis
Panel A: Cross-listed as B-shares								
LnTHP	766	9.710	9.719	0.893	6.726	11.656	-0.179	3.156
LnMAG	766	8.987	9.047	0.843	6.011	10.669	-0.488	3.511
ROA	766	0.033	0.029	0.066	-0.228	0.189	-0.661	6.142
ERET	691	-0.549	-0.375	0.679	-2.639	0.547	-0.726	2.754
LnSIZE	691	22.147	22.105	0.917	20.130	25.971	0.561	3.635
LEV	766	1.310	1.000	1.198	0.069	6.768	2.401	10.064
M/B	766	4.572	3.478	3.417	0.798	16.931	1.659	5.694
LnMEET	766	2.009	2.079	0.409	0.693	3.258	-0.164	3.539
LnBOARD	766	1.839	1.792	0.302	0.693	2.833	-0.027	3.903
IDR	766	0.507	0.500	0.200	0.000	1.250	-0.433	4.927
SHARE1	766	0.375	0.361	0.166	0.096	0.770	0.334	2.285
CTRL	766	0.204	0.000	0.403	0.000	1.000	1.472	3.166
DUAL	766	0.869	1.000	0.337	0.000	1.000	-2.193	5.810
COMP	766	0.651	1.000	0.477	0.000	1.000	-0.636	1.404

Table 4.2B Descriptive Statistics

The table reports the descriptive statistics of selected variables for Chinese public firms that concurrently issued H-shares over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values.

	N	Mean	Median	S.D.	Min	Max	Skewness	Kurtosis
Panel B: Cross-listed as H-shares								
LnTHP	382	10.205	10.220	0.839	7.681	11.656	-0.229	2.755
LnMAG	382	9.289	9.323	0.802	6.368	10.669	-0.514	3.218
ROA	382	0.052	0.044	0.070	-0.228	0.189	-0.628	5.576
ERET	307	-0.658	-0.471	0.759	-2.639	0.547	-0.664	2.756
LnSIZE	307	23.536	23.534	1.607	16.826	28.437	0.149	3.774
LEV	382	1.383	0.892	1.436	0.069	6.768	2.082	7.051
M/B	382	4.058	2.899	3.102	0.798	16.931	1.718	6.101
LnMEET	382	2.073	2.079	0.479	0.693	4.025	0.182	3.883
LnBOARD	382	1.873	1.946	0.364	0.000	2.639	-1.393	7.865
IDR	382	0.587	0.556	0.236	0.000	1.250	0.875	5.040
SHARE1	382	0.467	0.475	0.144	0.096	0.770	0.095	2.625
CTRL	382	0.202	0.000	0.402	0.000	1.000	1.488	3.213
DUAL	382	0.861	1.000	0.346	0.000	1.000	-2.090	5.369
COMP	382	0.858	1.000	0.349	0.000	1.000	-2.059	5.239

Table 4.3A Correlation Matrix

The table reports the correlation matrix of selected variables for Chinese public firms that concurrently issued B-share over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. The asterisk \* denotes the significance at the 5% level.

	LnTHP	LnMAG	ROA	ERET	LnSIZE	LEV	M/B	LnMEET	LnBOARD	IDR
Panel A: Cross-listed as B-shares										
LnTHP	1									
LnMAG	0.84*	1								
ROA	0.32*	0.29*	1							
ERET	0.04	-0.16*	0.08*	1						
LnSIZE	0.39*	0.35*	0.40*	-0.081	1					
LEV	0.01	0.01	-0.32*	-0.097	-0.09*	1				
M/B	-0.08*	-0.09*	0.10*	-0.048	0.07	0.18*	1			
LnMEET	0.14*	0.19*	-0.10*	-0.149	0.08*	0.13*	-0.07*	1		
LnBOARD	-0.02	-0.03	-0.03	0.138	0.15*	-0.04	-0.13*	-0.02	1	
IDR	0.187*	0.29*	0.14*	-0.255	0.04	0.07	-0.01	0.09*	-0.61*	1
SHARE1	-0.19*	-0.24*	0.01	0.043	0.10*	-0.03	0.12*	-0.11*	-0.12*	0.03



Table 4.3B Correlation Matrix

The table reports the correlation matrix of selected variables for Chinese public firms that concurrently issued H-shares over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. The asterisk \* denotes the significance at the 5% level.

	<i>LnTHP</i>	<i>LnMAG</i>	<i>ROA</i>	<i>ERET</i>	<i>LnSIZE</i>	<i>LEV</i>	<i>M/B</i>	<i>LnMEET</i>	<i>LnBOARD</i>	<i>IDR</i>
Panel B: Cross-listed as H-shares										
<i>LnTHP</i>	1									
<i>LnMAG</i>	0.82*	1								
<i>ROA</i>	0.13*	0.14*	1							
<i>ERET</i>	0.07	-0.25*	0.15*	1						
<i>LnSIZE</i>	0.48*	0.52*	0.29*	-0.13*	1					
<i>LEV</i>	0.10*	0.14*	-0.30*	-0.08	0.10	1				
<i>M/B</i>	-0.11*	-0.06	0.24*	-0.15*	0.13*	0.14*	1			
<i>LnMEET</i>	0.13*	0.22*	-0.12*	-0.19*	0.14*	0.21*	-0.09	1		
<i>LnBOARD</i>	-0.09	-0.10*	-0.13*	0.01	-0.01	-0.03	-0.18*	0.08	1	
<i>IDR</i>	0.19*	0.24*	0.08	-0.09	0.11	0.11*	0.05	0.03	-0.62*	1
<i>SHARE1</i>	-0.04	-0.02	-0.04	0.02	0.35*	0.14*	-0.04	0.01	-0.11*	0.12*

Table 4.4 Two Samples Mean *T*-tests

The table reports the two samples mean *t*-tests of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. *t*-tests with significant values are bolded at the 5% level.

		LnTHP	LnMAG	ROA	ERET	LnSIZE	LEV	M/B	LnMEET	LnBOARD	IDR	SHARE1
Panel A: D_BSHARE												
Values	N											
0	9934	9.287	8.554	0.027	-0.571	21.725	1.303	3.709	2.041	1.842	0.508	0.398
1	766	9.710	8.987	0.033	-0.549	22.147	1.310	4.572	2.009	1.839	0.507	0.375
<i>t</i> -test		<b>-11.680</b>	<b>-12.602</b>	<b>-2.683</b>	-0.840	<b>-10.263</b>	-0.155	<b>-7.828</b>	<b>2.199</b>	0.268	0.072	<b>3.652</b>
<i>p</i> -value		0.000	0.000	0.007	0.401	0.000	0.877	0.000	0.028	0.789	0.942	0.000
Panel B: D_HSHARE												
Values	N											
0	10316	9.285	8.559	0.027	-0.567	21.700	1.301	3.761	2.038	1.840	0.505	0.394
1	382	10.205	9.289	0.052	-0.658	23.536	1.383	4.058	2.073	1.873	0.587	0.467
<i>t</i> -test		<b>-18.470</b>	<b>-15.342</b>	<b>-8.186</b>	<b>2.258</b>	<b>-31.617</b>	-1.418	-1.938	-1.701	<b>-2.079</b>	<b>-7.489</b>	<b>-8.529</b>
<i>p</i> -value		0.000	0.000	0.000	0.024	0.000	0.156	0.053	0.089	0.038	0.000	0.000

Table 4.5 Two Sample Median Pearson *Chi*-square Test

The table reports the two samples median Pearson *Chi*-square tests of selected variables for Chinese public firms that concurrently issued B-share and H-shares over 2001-2010. *LnTHP* is the three-highest-paid executive compensation. *LnMAG* is the total management team compensation. *ROA* is return on assets. *ERET* is excess stock return. *LnSIZE* is the total value of market capitalization. *LEV* is total debt to total equity ratio. *M/B* is Market-to-Book ratio. *LnMEET* is the total number of board meetings per year. *LnBOARD* is board size. *IDR* is the percentage of independent directors on the board. *SHARE1* is the percentage of shares held by the largest shareholder. *CTRL* is a state dummy. *DUAL* is a CEO duality dummy. *COMP* is a compensation committee dummy. *LnTHP*, *LnMAG*, *LnSIZE*, *LnMEET*, and *LnBOARD* are natural logarithmic values. *t*-tests with significant values are bolded at the 5% level.

		LnTHP	LnMAG	ROA	ERET	LnSIZE	LEV	M/B	LnMEET	LnBOARD	IDR	SHARE1
Panel A: D_BSHARE												
Values	N											
0	9934	9.300	8.607	0.028	-0.387	21.572	1.013	2.798	2.079	1.792	0.505	0.381
1	766	9.719	9.047	0.029	-0.375	22.105	1.000	3.478	2.079	1.792	0.508	0.361
<i>Chi</i> -square		<b>108.674</b>	<b>131.668</b>	0.170	0.040	<b>142.167</b>	0.276	<b>42.573</b>	2.744	2.347	0.293	2.976
<i>p</i> -value		0.000	0.000	0.680	0.842	0.000	0.600	0.000	0.098	0.126	0.588	0.085
Panel B: D_HSHARE												
Values	N											
0	10316	9.301	8.619	0.028	-0.384	21.582	1.016	2.840	2.079	1.792	0.500	0.374
1	382	10.220	9.323	0.044	-0.471	23.534	0.892	2.899	2.079	1.946	0.556	0.475
<i>Chi</i> -square		<b>194.983</b>	<b>141.123</b>	<b>36.845</b>	1.207	<b>172.885</b>	<b>5.744</b>	0.174	2.801	<b>31.312</b>	<b>49.642</b>	<b>57.867</b>
<i>p</i> -value		0.000	0.000	0.000	0.272	0.000	0.017	0.677	0.094	0.000	0.000	0.000

Table 4.6 Probit and Logit Regressions of Cross-Listing Decision by Using LnTHP

The table reports the Probit/Logit regression results of cross-listing decision by using *LnTHP* and other selected variables as independent variables for Chinese public firms over 2001-2010. The definitions of other selected variables refer to methodologies. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variables:	D_BSHARE		D_HSHARE	
	Model (1)	Model (2)	Model (3)	Model (4)
	Probit	Logit	Probit	Logit
LnTHP	0.259*** (8.93)	0.507*** (8.55)	0.388*** (8.15)	0.761*** (7.84)
ROA	-2.792*** (-7.15)	-5.316*** (-7.13)	-4.223*** (-6.64)	-8.359*** (-6.17)
LnSIZE	0.272*** (9.77)	0.508*** (9.37)	0.582*** (15.80)	1.300*** (16.30)
LEV	-0.027 (-1.33)	-0.055 (-1.40)	0.026 (0.84)	0.052 (0.80)
M/B	0.056*** (7.29)	0.101*** (6.81)	-0.050*** (-3.20)	-0.118*** (-3.49)
LnMEET	-0.047 (-0.83)	-0.131 (-1.17)	0.263*** (3.02)	0.570*** (3.19)
LnBOARD	-0.280*** (-3.09)	-0.539*** (-3.01)	0.499*** (3.79)	0.869*** (3.08)
IDR	-0.393** (-2.45)	-0.738** (-2.34)	1.010*** (4.71)	1.916*** (4.13)
SHARE1	-1.194*** (-8.51)	-2.525*** (-8.88)	-0.012 (-0.05)	-0.467 (-0.99)
CTRL	-0.392*** (-6.72)	-0.803*** (-6.56)	-0.534*** (-4.19)	-1.085*** (-3.72)
DUAL	0.096 (1.44)	0.202 (1.49)	-0.050 (-0.44)	-0.003 (-0.01)
COMP	-0.202*** (-3.61)	-0.358*** (-3.22)	0.320*** (3.19)	0.635*** (2.98)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10183	10183	9172	9172
LR <i>Chi</i> -square	575.40	569.34	992.21	1019.60
Log likelihood	-2238.33	-2241.36	-848.59	-834.90
% Correctly classified	93.24	93.23	97.05	97.13
Pseudo R <sup>2</sup>	0.114	0.113	0.369	0.379

Table 4.7 Probit and Logit Regressions of Cross-Listing Decision by Using ERET

The table reports the Probit/Logit regression results of cross-listing decision by using *ERET* as firm performance measure and other selected variables as independent variables for Chinese public firms over 2001-2010. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variables:	D_BSHARE		D_HSHARE	
	Model (1)	Model (2)	Model (3)	Model (4)
	Probit	Logit	Probit	Logit
LnTHP	0.215*** (7.70)	0.420*** (7.36)	0.325*** (7.19)	0.667*** (7.16)
ERET	-0.133** (-2.45)	-0.240** (-2.25)	-0.215*** (-2.61)	-0.360** (-2.12)
LnSIZE	0.232*** (8.58)	0.437*** (8.24)	0.539*** (15.22)	1.209*** (15.88)
LEV	0.022 (1.19)	0.044 (1.18)	0.106*** (3.67)	0.215*** (3.66)
M/B	0.051*** (6.53)	0.090*** (5.90)	-0.068*** (-4.37)	-0.160*** (-4.59)
LnMEET	-0.030 (-0.53)	-0.098 (-0.87)	0.288*** (3.33)	0.622*** (3.48)
LnBOARD	-0.282*** (-3.11)	-0.532*** (-2.95)	0.523*** (3.99)	0.934*** (3.32)
IDR	-0.406** (-2.52)	-0.783** (-2.46)	1.015*** (4.77)	1.890*** (4.08)
SHARE1	-1.261*** (-9.05)	-2.671*** (-9.45)	-0.145 (-0.64)	-0.720 (-1.54)
CTRL	-0.408*** (-7.03)	-0.835*** (-6.83)	-0.520*** (-4.19)	-1.131*** (-3.90)
DUAL	0.087 (1.32)	0.166 (1.24)	-0.068 (-0.62)	-0.125 (-0.52)
COMP	-0.203*** (-3.65)	-0.363*** (-3.27)	0.331*** (3.34)	0.647*** (3.06)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10183	10183	9172	9172
LR <i>Chi</i> -square	532.43	527.90	957.32	989.18
Log likelihood	-2259.81	-2262.07	-866.04	-850.11
% Correctly classified	93.22	93.19	97.01	97.13
Pseudo R <sup>2</sup>	0.105	0.105	0.356	0.368

Table 4.8 Probit and Logit Regressions of Cross-Listing Decision by Using LnMAG

The table reports the Probit/Logit regression results of cross-listing decision by using *LnMAG* and other selected variables as independent variables for Chinese public firms over 2001-2010. The asterisks \*, \*\*, and \*\*\* indicate the significance at the 10%, 5%, and 1% level, respectively; *t*-statistics in parentheses.

Dependent Variables:	D_BSHARE		D_HSHARE	
	Model (1) Probit	Model (2) Logit	Model (3) Probit	Model (4) Logit
LnMAG	0.345*** (10.95)	0.683*** (10.70)	0.264*** (5.60)	0.553*** (5.28)
ROA	-2.954*** (-7.55)	-5.616*** (-7.54)	-3.194*** (-5.31)	-7.721*** (-5.83)
LnSIZE	0.252*** (9.07)	0.467*** (8.63)	0.585*** (18.03)	1.356*** (17.05)
LEV	-0.026 (-1.31)	-0.055 (-1.40)	0.026 (0.89)	0.074 (1.16)
M/B	0.054*** (7.04)	0.096*** (6.48)	-0.076*** (-5.70)	-0.133*** (-3.97)
LnMEET	-0.054 (-0.96)	-0.140 (-1.26)	0.219*** (2.75)	0.632*** (3.56)
LnBOARD	-0.257*** (-2.83)	-0.472*** (-2.62)	0.514*** (4.12)	1.070*** (3.80)
IDR	-0.404** (-2.50)	-0.735** (-2.30)	0.935*** (4.80)	2.190*** (4.72)
SHARE1	-1.127*** (-8.01)	-2.386*** (-8.40)	-0.032 (0.15)	-0.866* (-1.85)
CTRL	-0.402*** (-6.85)	-0.826*** (-6.73)	-0.472*** (-3.95)	-1.080*** (-3.73)
DUAL	0.110* (1.65)	0.234* (1.72)	-0.040 (-0.38)	-0.019 (-0.08)
COMP	-0.209*** (-3.72)	-0.365*** (-3.26)	0.286*** (3.13)	0.640*** (3.03)
∑ SIC	Included	Included	Included	Included
∑ YEAR	Included	Included	Included	Included
N	10183	10183	9172	9172
LR <i>Chi</i> -square	619.43	614.71	914.32	980.44
Log likelihood	-2216.31	-2218.66	-914.32	-854.48
% Correctly classified	93.2	93.23	97.33	97.17
Pseudo R <sup>2</sup>	0.123	0.122	0.328	0.365

## CHAPTER V

### SUMMARY AND CONCLUSION

Most literature along the compensation research investigates the determinants of executive compensation in Anglo-Saxon economies (Core *et al.*, 2003; Kaplan, 1997, 1999). Unfortunately, empirical efforts to find a positive correlation between firm value and executive compensation show relatively weak or no results in these economies. Hence, Jensen and Murphy (1990) point out that testing the pay-performance setting without specifying the characteristic of corporate governance could hardly provide useful insights into the understanding of general pay practice. Black (2001) further claims that the Anglo-Saxon context is not an ideal setting to test the effectiveness of corporate governance on firm value and executive compensation because the quality of corporate governance in these countries is quite high, while in an emerging country where legal and cultural constraints on corporate behavior are weak, corporate governance has a more powerful effect on relationship between firm value and executive compensation.

This dissertation examines the relationship between executive compensation, firm performance and liquidity under imperfect corporate governance institution by using a novel sample of Chinese public firms over 2001-2010. China, as a major emerging economy, has been well documented as having weak institutional features and distinctive board structures. The distinctions are reflected in several ways, which can be summarized as follows:

First, Chinese firms typically have a two-tier board structure where a listed firm is governed by both a board of directors and a supervisory committee. In contrast to the one-tier board structure in Anglo-Saxon countries, there is a natural distance between executive board members and non-executive board members in China. Second, the majority of Chinese listed companies are state-owned enterprises and their major corporate decisions are frequently exercised by the government. Particularly, Chinese executives and directors are often bureaucrats appointed or nominated by the government. Third, high ownership concentration is prevalent among Chinese public firms. On average, the equity ownership held by the largest shareholder in a firm is more than 40% (Allen *et al.*, 2005). The concentrated ownership structure implies that the classical principal-agent conflict is likely to be of less concern because controlling shareholders have more incentives to monitor managers. Thus, the empirical studies in the Chinese context have important implications for investors, board members and regulators to better understand the pay-performance setting and institutional background under imperfect corporate governance institution.

This dissertation extends the existing literature by investigating the determinants of Chinese management remuneration and the role of firm performance, firm liquidity, and corporate governance in CEO compensation for Chinese public firms. The major findings and conclusions are summarized in three essays.

The first essay examines the determinants of Chinese executive compensation from the agency-based theoretical framework. The most well-known studies arise from the separation of ownership and control or agency theory (Fama and Jensen, 1983; Jensen and Meckling 1976). Agency theory suggests that the CEO compensation contract is determined by arms-length bargaining that leads to efficient outcomes (Holmstrom and Kaplan, 2003; Edmans and Gabaix,



2009), and thus it predicts that executive compensation depends, at least in part, on changes in shareholder's wealth. Therefore, a positive relationship between management compensation and firm performance is in line with agency theory in the sense that the higher the pay-performance responsiveness, the lower the level of "skimming."

The results from essay one show that there is a positive relationship between Chinese executive compensation and firm performance by controlling for other firm characteristics and corporate governance attributes. Moreover, the first essay moves beyond the basic pay-performance setting by investigating the great impacts of institutional changes on executive compensation and corporate governance. The results show that the weak corporate governance in China exhibits strong liquidity and control effects after the split-share structure reform. Although ownership concentration has significantly negative impacts on CEO compensation, firm liquidity has significantly contributed to the increases in executive compensation since 2005. Most importantly, I find that CEO duality, the establishment of compensation committees, and the involvement of state ownership in Chinese public firms may lead executive compensation to a relation-based rather than a market-based contract, suggesting that the government or board may ensure efficient incentives in the business activities as a helping-hand when corporate governance is weak.

Another main stream of research in the area of CEO compensation is from the entrenchment framework which states that powerful CEOs can exercise enormous sway over boards, rendering the boards ineffective in setting appropriate CEO contracts (Bebchuk and Fried, 2004; Morse *et al.*, 2010). From this rent-extraction perspective, in a country where corporate governance and legislative institutions are weak, CEO contract results in a higher level of compensation through expropriations of the minority shareholders by the controlling

shareholder. Therefore, I conduct empirical studies in the second essay by combining the CEO entrenchment theory with other alternatives such as corporate governance and board characteristics to examine the probability of expropriation of minority shareholders in terms of executive compensation based on CEO entrenchment theory.

Specifically, the second essay explores the probability of expropriation of minority shareholders by controlling shareholders in terms of CEO compensation in an imperfect governance institution. The results reveal that controlling shareholder's tunneling has a significant deterioration effect on firm performance. Firms with more tunneling activities typically have larger controlling ownership, stronger state control, less balance of power by large shareholders as well as weak board characteristics. The positive relationship between controlling shareholders' tunneling and executive compensation implies that the controlling shareholder might divert personal benefits from public firms at the expense of minority shareholders in terms of executive compensation. Overall, the results support the entrenchment skimming theory, suggesting that a strong corporate governance system and firm characteristics may lower the likelihood of tunneling and improve the level of investor protection.

Since 1993, increasing numbers of Chinese firms have cross-listed in the global markets, and many international investors buy shares in these companies in order to participate in the spectacular growth of the Chinese economy (Cheung *et al.*, 2009). Initially, a majority of the Chinese firms were traded overseas in Hong Kong and B-shares market and served as a vehicle to signal the quality of SOEs. However, most Chinese overseas shares are selected by the government or dominated by SOEs, and hence their issuances are primarily determined by political relations, not by the firms' desire to find growth opportunities or expand foreign sales (Hung *et al.*, 2008). Moreover, due to historical reasons, many Chinese companies traditionally

have separate, restricted share classes for domestic residents and foreigners. The third essay on Chinese cross-listing decisions is compelling also because the motivations for Chinese firms to list overseas differ from their counterparts in the U.S. or European countries.

In the third essay, I examine the determinants of cross-listing for Chinese public firms over 2001-2010 by focusing on the A-shares that concurrently issue B-shares or H-shares because they are subject to both domestic and overseas regulations. I study the importance of firm performance and liquidity, executive compensation, and corporate governance on the decision to cross-list for Chinese public firms based on agency theory, and the signaling and bonding hypotheses. I find that cross-listing issuers are motivated to list overseas by the legal and accounting standards of the foreign markets, management remuneration as well as the demands for external capital and foreign expertise. The results suggest that the level of Chinese executive compensation is associated with the decision to cross-list, and cross-listings could be employed by executives as a way of asset appropriation. Moreover, a Chinese firm is more likely to list overseas if it experiences value deterioration, or lacks growth opportunities. Finally, it suggests that board characteristics have a more important role in determining to cross-list in Hong Kong relative to the B-share market. The results have important implications to help us better understand CEO entrenchment and investor protection under imperfect corporate governance institutions.

Overall, this dissertation extends the literature on the determinants of executive compensation under imperfect corporate governance institution. However, there are several questions remained for further studies. One of the questions is whether there is a trade-off between liquidity and control when corporate governance is weak. The theory of Maug (1998) implies that liquidity is beneficial to corporate governance, while Coffee (1991) and Bhidé

(1993) argue that liquidity is detrimental and hinders the effectiveness of corporate governance. This implies that a more liquid firm should have a higher corporate governance score. Further studies will be interesting if one follows Gomper's (2003) method to generate a corporate governance index for Chinese public firms and examine the overall relationship between corporate governance score and firm liquidity. Moreover, previous literature uses different measures to gauge firm liquidity; for example, turnover ratio, market value turnover ratio, and the Amihud illiquidity ratio are all commonly used in prior studies. Another issue is regarding the proxies of firm performance, some scholars prefer to use security data, while others prefer to use accounting data, or use a combined indicator--Tobin's Q. In this dissertation, I didn't use Tobin's Q because the Tobin's Q in the Chinese capital market is not accurately priced due to the existence of non-tradable shares in the secondary market, and it is greatly affected by the volume of tradable shares held in a firm as well as the windows of opportunity effects for launching the IPOs. However, future studies would be impressive if controversy results are found by using another firm performance measure.

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## APPENDIX A

## APPENDIX A

### INDUSTRY CLASSIFICATION

SIC	GICLS	Descriptions
1	A	Agriculture, forestry, animal, husbandry, and fishery
2	B	Mining
3	C	Manufacturing
	C0	Food and drink
	C1	Textiles clothing and fur
	C2	Timber and furniture
	C3	Paper making and printing
	C4	Petroleum, chemistry and plastics
	C5	Electronics
	C6	Metal, non-metal mining
	C7	Machinery, equipment and instruments
	C8	Medicine, biological products
	C9	Other manufacturing
4	D	Electricity, gas, and water supply
5	E	Construction
6	F	Transportation and storage
7	G	Information technology
8	H	Wholesale and retail trade
9	I	Finance
10	J	Real estate
11	K	Social service
12	L	Communication and culture
13	M	Miscellaneous

## APPENDIX B

## APPENDIX B

### SAS SYNTAX AND STATA CODES

#### STATA CODES FOR ESSAY ONE

```
*use wk2010d.dta dataset, count=10700*
tabstat wr_share1, by(year) s(mean median)
gen State=wr_share1*d_ctrl1
qreg lnmanager wexcessret LnSIZE wLEV wpb1 wr_SHARE1 LnMEET LnBOARD wInd
d_ctrl1 dual1 d_compensation Sctrl,quantile(50)

*if the B/M ratio is above 1 then the stock is undervalued; if it is less than 1, the stock is
overvalued.*
winsor x, gen(x1) p(0.01)
tabstat x1 x2 x3, statistics( count mean median sd min max skewness kurtosis)
tabstat x1, by(year) s(mean median)
pwcrr lnTHP lnMAG wroa weret lnSize wLev wMB lnMeet Lnboard wInd wshare1, sig
star(5)

by year, sort: sum
xtset id year
gen id2=substr(id1,2,9)
destring id2, replace

*cross-sectional regression *
Xi i.year
xi i.sic
xi: reg lnTHP wroa lnSize wLev wMB lnMeet Lnboard wInd wshare1 wCTRL State wDual
Comp i.sic i.year
esttab,t r2 ar2 star(* 0.10 ** 0.05 *** 0.01) b(3) t(2) r2(2)

xi: qreg lnTHP wroa lnSize wLev wMB lnMeet Lnboard wInd wshare1 wCTRL State wDual
Comp i.sic i.year, quantile(50)

xi: reg lnTHP reform wroa lnSize wLev wMB lnMeet Lnboard wInd wshare1 wCTRL State
wDual Comp i.sic
```

```
xtset id year
xtreg lnTHP wroa lnSize wLev wMB lnMeet Lnboard wInd wshare1 wCTRL State wDual
Comp, fe vce( cluster id)
```

```
gen reform=1 if year>=2006
gen reform1=reform
replace reform=0 if reform1>=.
```

```
xtabond2 LnTHP L.LnTHP wROA LnSIZE wLEV wMB LnMEET LnBOARD wInd
wSHARE1 wCTRL wDUAL Comp, gmm(wROA LnMEET, lag(2 2)) iv( wSHARE1 wCTRL
LnBOARD wInd LnSIZE wLEV wMB) small
```

```
xtabond2 LnMAG L.LnMAG wERET LnSIZE wLEV wMB LnMEET LnBOARD wInd
wSHARE1 wCTRL wDUAL Comp, gmm(wROA LnMEET, lag(2 2)) iv( wSHARE1 wCTRL
LnBOARD wInd LnSIZE wLEV wMB) small
```

```
xthtaylor LnTHP wERET LnSIZE wLEV wMB LnMEET LnBOARD wInd wSHARE1
wCTRL State wDUAL Comp, endog (eERET) varying (LnSIZE wLEV wMB wshare1)
noconstant
```

```
xthtaylor excessQ civil Antidirectors market_development crosslist_event turnover nyse if
Year<10, endog (civil Antidirector ) ///
varying (market_development crosslist_event turnover ) noconstant
```

```
drop if close>=.
. tsset stockid dt
. xtreg RE MRE LnSIZ PB EPS LnAI,fe
. estimates store re
. xtreg RE MRE LnSIZ PB EPS LnAI,fe
hausman re, sigmamore
```

```
*this part conduct hausman test*
xtreg tfp bexport control,fe
est store fe_result
xtreg tfp bexport control,re
est store re-result
hausman fe_result re_result
```

For panel data graph, see xtline, xtgraph, xtsum

```
* this conducts GMM test*
. xtabond2 RE l.RE MRE LnSIZ LnAI PB EPS,gmm( MRE LnSIZ PB, lag(2 2)) iv( LnAI
EPS) nolevel small
xtabond2 lntop L.lntop wexcessret LnSIZE LnMEET wInd, gmm(wexcessret LnSIZE, lag(2 2))
iv(LnMEET) nolevel small
```



```
xtabond2 lntop L.lntop wexcessret LnSIZE wr_SHARE1 LnMEET LnBOARD wInd
d_compensation, gmm(wexcessret LnSIZE, lag(2 2)) iv(wexcessret) nolevel small
```

```
*code for quantile regression*
qreg lntop LnSIZE LnMEET wInd wpb1, quantile(25)
choice of quantile(s) example
a single quantile QUANTILE = 0.25, 0.5, 0.75, all
```

```
*this is the steps how to use STATA modules*
qreg    Statistics > Nonparametric analysis > Quantile regression
iqreg   Statistics > Nonparametric analysis > Interquantile regression
sqreg   Statistics > Nonparametric analysis > Simultaneous-quantile regression
bsqreg  Statistics > Nonparametric analysis > Bootstrapped quantile regression
```

In addition to Koenker and Basset standard errors, Stata can provide bootstrapped standard errors, using the `bsqreg` command:

```
. bsqreg price weight length foreign
```

The coefficient estimates are the same as those in the first example. The standard errors, and, therefore, the t statistics, significance levels, and confidence intervals differ.

Stata can also perform simultaneous-quantile regression. Previously, we ran separate regressions for the .25, .5, and .75 quantiles. With simultaneous-quantile regression, we can estimate all the effects simultaneously:

```
. sqreg price weight length foreign, q(.25 .5 .75)
```

We can test whether the effect of weight is the same at the 25th and 75th percentiles:

```
. test[q25]weight = [q75]weight
```

```
*Code for figure 1*
winsor pay_top, gen(wpay_top) p(0.01)
. winsor pay_3manager, gen(wpay_3manager) p(0.01)
. tabstat wpay_top wpay_3manager, by(year) s(mean median)
```

```
*data cleaning codes*
Drop if herfindahl_5==-.97 *share1*
Drop if pay==-.97 *return roa*
Delete Small and middle board stock
Delete PT, ST and non-active stocks
```

Exchange rate used as of December 31, 2011 which is 1USD=7.76799HKD and 1USD=6.30559CNY.

the ultimate controller of the firm is defined as

“0” if it is controlled by the state,

“1” by the private,

“2” by foreign ownership,

“3” by collective ownership,

“4” by social entities,  
“5” by employees,  
“6” by other ownerships that cannot be recognized,  
“-95” indicates the value is missing.

Tobin’s Q is the ratio of the firm’s market value divided by the replacement cost of total assets. While market value of the firm is the market value of tradable equity+the book value of non-tradable equity and liabilities; the replacement cost of the assets is the book value of total assets.

\*useful links for SAS codes\*

<http://www.datasavantconsulting.com/roland/sastips.html>

<http://www.nber.org/~veronica/sastips.htm>

<http://support.sas.com/sassamples/archive.html>

[http://www4.ncsu.edu/~fisik/SAS\\_Data\\_Handling.htm](http://www4.ncsu.edu/~fisik/SAS_Data_Handling.htm)

<http://www.creative-wisdom.com/computer/sas/sas.html>

## STATA CODES FOR ESSAY TWO

\* I use wk2010f\_esy2.dta to get results for essay2\_0528, \*

\* I use wk2010e\_esy2.dta for essay2\_0521, tul with “0”s \*

```
tabstat wtul, by(year) s(mean median)
```

```
winsor x, gen(x1) p(0.01)
```

```
tabstat LnTHP LnMAG wtul wROA wERET LnSIZE wLEV wMB LnMEET LnBOARD wInd  
lsh1 wherf5 wCTRL wDUAL Comp, statistics( count mean median sd min max skewness  
kurtosis)
```

```
pwcorr LnTHP LnMAG wtul wROA wERET LnSIZE wLEV wMB LnMEET LnBOARD wInd  
lsh1 wherf5
```

\*Empirical Results\*

```
xi i.sic
```

```
xi i.year
```

```
xi: reg wtul wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic i.dyear
```

```
xi: qreg wtul wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic
```

```
i.dyear,quantile(50)
```

```
xtset id year
```

```
xtreg wtul wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL, fe vce( cluster  
id)
```

```
http://www.stata.com/capabilities/overview/quantile-regression/
```

```
esttab,t r2 ar2 star(* 0.10 ** 0.05 *** 0.01) b(3) t(2) r2(2)
```

```
xtile wtul5=wtul, nq(5)
```

```
xi: logit d_wtul wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic
```

```
i.dyear
```

```
xi: probit d_wtul wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic  
i.dyear
```

```
lstat * Correctly classified rate*
```

```
xi: ologit wtul5 wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic  
i.dyear
```

```
xi: ologit wtul10 wroa lnSize wLev wMB lnMeet Lnboard wInd lsh1 wherf5 wCTRL i.sic  
i.dyear
```

```
*Code for 2SLS*
```

```
xi: ivreg lnTHP ( wtul= lnMeet Lnboard wInd lsh1 wherf5 wCTRL) wroa lnSize wLev wMB  
wDual Comp i.sic i.dyear
```

### STATA CODES FOR ESSAY THREE

```
Descriptive: A-share by years ( mean and median) lnTHP ROA * B-share* *H-share*
```

```
Ttest of executive compensation corp gov, firm characteristics of A-share and B-share
```

```
Ttest of executive compensation corp gov, firm characteristics of A-share and H-share
```

```
Median test
```

```
*Probit or Logit model*
```

```
Dependent: B_dummy "1" has B-share *Dependent: H_dummy "1" has H-share*
```

```
gen lsh1=4 if wshare1>0.5
```

```
replace lsh1=3 if wshare1>0.25 & wshare1<=0.5
```

```
table year lsh1, contents(freq) *tabulate y x, col*
```

```
tabstat wSHARE1 wr_share2, by (year) statistics( count mean median sd min max)
```

```
tabstat wshare1, by (year) statistics( count mean median sd min max)
```

```
tabstat lnTHP lnMAG wROA wERET lnSIZE wLEV wMB lnMEET lnBOARD wInd  
wSHARE1 wCTRL wDUAL Comp, statistics( count mean median sd min max skewness  
kurtosis)
```

```
keep if b==1
```

```
pwcorr lnTHP lnMAG wroa weret lnSize wLev wMB lnMeet Lnboard wInd wshare1 ,sig  
star(5)
```

```
keep if b==1
```

```
pwcorr lnTHP lnMAG wroa weret lnSize wLev wMB lnMeet Lnboard wInd wshare1 ,sig  
star(5)
```

```
xi i.sic
```

```
xi i.year
```

```
xi: logit b lnTHP wroa lnSize wLev wMB lnMeet Lnboard wInd wshare1 wCTRL wDual  
Comp i.sic i.dyear
```

```
. mfx *Marginal effects after logit * lstat * % corrected classified *
```

```
xi: probit b lnTHP wroa lnSize wLev wMB lnMeet lnboard wInd wshare1 wCTRL wDual  
Comp i.sic i.dyear
```

```
*Graph*
```

```
hist x, by (sex)
```

```
graph box x, by (sex)
```

```
twoway scatter x y
```

```
graph matrix x y z
```

```
*Two Sample T-Test*
```

```
ttest x=50, by (sex)
```

```
ttest x=y
```

```
oneway y x
```

```
anova y x
```

```
dprobit * report marginal effects instead of coefficients*
```

```
logit y x1 x2,or
```

```
mlogit
```

```
oprobit
```

```
mfx compute, at ( south=0,black=1,urban=0)
```

```
tobit apt read math i.prog, ul(800)
```

\*Below I run the tobit model, using read, math, and prog to predict apt. The ul( ) option in the tobit command indicates the value at which the right-censoring begins (i.e., the upper limit).

There is also all( ) option to indicate the value of the left-censoring (the lower limit) which was not needed in this example. The i. before prog indicates that prog is a factor variable (i.e., categorical variable), and that it should be included as a series of dummy variables.\*

\*<http://www.ats.ucla.edu/stat/stata/dae/tobit.htm>\*

## SAS CODES FOR ESSAY ONE TO THREE

```
Data sample1; set sample;
```

```
id +1;
```

```
length cusip8 $8; cusip8=substr(cusip9,1,8);
```

```
format date yymmddn8.; date=andante put date yymmddn8.; run; /* andante has to be a date  
variable something like 01/12/2006 */
```

```
proc sql; create table sample_id as select cusip, date, id from sample1; quit;
```

```
data return1; set return; id=entity*1;
```

```
proc sort data=sample1; by id; run;
```

```
proc sort data=return1; by id; run;
```

```
proc sql; create table ALL as select * from sample1 as a left join return1 on  
sample1.id=return1.id; quit;
```

```
proc sql; create table sample_id as select cusip, date, id from sample1; quit;
```

```
proc export data=sample_id
outfile='C:\yluo\desktop\sample_id.txt' dbms=tab replace; run;
```

```
proc contents data=sample; run;
options nocenter pagesize=150 ls=150;
proc print data=sample (obs=10);
proc sort data=sample nodupkey out=_sample_ by id cusip; run;
proc means data=sample n mean median t prt p1 p95 skew kurtosis std var;
var x1 x2 x3;
where x1>=60;
calss year; run;
```

```
proc univariate plot data=sample;
proc corr data=sample; no miss;
proc freq data=sample; tables x1 x2;
```

```
Data sample1; set sample;
keep id year cusip;
drop x2 x3;
rename entity=id cusip8=cusip;
label id="identity";
if (x1>=60) then X1_dm=1; else X1_dm=2;
if year=1999 then output sample1999;
proc reg data=sample;
model y= x1 x2 x3/ STB TOL VIF DW ACOV SPEC;
plot y*x1;
output out=param predicted=x1 residual=x1;
run;
```

```
proc glm data=sample;
class year
model y= x1 x2 x3 year/ SOLUTION;
run;
```

```
proc logistic data=sample;
model Y_dmy = x1 x2;
output out=results p=predict; run;
```

```
proc sort data=sample1; by id;
proc sort data=return1; by id;
data NEW; merge sample1 return1; by id; run;
```

```
proc sql; create table ALL as select * from sample1, return1
where sample1.id=return1.id and sample1.sic=return1.sic1; run; quit;
```

## APPENDIX C

## APPENDIX C

### ABBREVIATIONS AND DEFINITIONS

American depositary Receipt (ADR)  
Accounting Regulations for Business and Enterprise (ARBE)  
China Center for Economic Research (CCER)  
Chief Executive Officer (CEO)  
Chinese Securities Market and Accounting Research (CSMAR)  
China Securities Regulatory Commission (CSRC)  
Guidelines on Industry Classification of Listed Companies (GICLS)  
Global Industry Classification Standard (GICS)  
Hong Kong Stock Exchange (HKSE)  
Initial public offering (IPO)  
Management team compensation (MAG)  
Pause Transaction (PT)  
Securities and Exchange Commission (SEC)  
Shanghai Stock Exchange (SHSE)  
Small and Middle Enterprises (SME)  
State Owned Enterprise (SOE)  
Special Treatment (ST)  
Shenzhen Stock Exchange (SZSE)  
Three-highest-paid executive compensation (THP)

## BIOGRAPHICAL SKETCH

Mr. Yongli Luo obtained his Ph.D. degree in Business Administration with emphasis in Finance at the College of Business Administration at The University of Texas-Pan American (UTPA). He received a Master's degree in Management from The Graduate University of Chinese Academy of Sciences and a Bachelor's degree in International Business from Chongqing University in China.

Mr. Luo's research interest focuses on Corporate Finance, Financial Markets & Institutions, International Business and Investment, Financial Modeling, and Emerging Markets Finance. He has published articles in peer-reviewed journals such as *Advances in Financial Economics*, *Journal of Multinational Financial Management*, *Global Business and Finance Review* and *The Journal of Current Research in Global Business*. In addition, Mr. Luo has presented his research at various national and international conferences held by Financial Management Association (FMA), Association for Global Business (AGB), Southwestern Finance Association (SWFA), Academy of Behavioral Finance and Economics (ABFE) and Academy of Economics & Finance (AEF).

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